

AMERICAN GAS ASSOCIATION MONTHLY



Vol. IV

No. 7

JULY, 1922

I SPEAK for administrative efficiency, for lightened tax burdens, for sound commercial practices, for adequate credit facilities, for sympathetic concern for all agricultural problems, for the omission of unnecessary interference of Government with business, for an end to Government's experiment in business, and for more efficient business in Government administration. With all of this must attend a mindfulness of the human side of all activities, so that social, industrial and economic justice will be squared with the purposes of a righteous people.

—PRESIDENT HARDING.



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FOR STATEMENTS AND OPINIONS CONTAINED IN PAPERS AND DISCUSSIONS
APPEARING HEREIN, THE ASSOCIATION DOES NOT HOLD ITSELF RESPONSIBLE

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American Gas Association Monthly

Vol. IV

JULY, 1922

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The Association's New Home



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The Association Moves Its Headquarters

TWO of the objects of the American Gas Association are: "To advance to the highest efficiency the methods of manufacture, distribution, utilization, sales and accounting employed in the gas industry, and to collect, co-ordinate and disseminate ideas and information for this purpose" and "To promote closer relations and cordial co-operation in all branches of the gas industry."

It is axiomatic, that, to accomplish these things with the maximum of effectiveness, the Association must be so housed that it can work in the most effective manner. For this reason, and because the considerable expansion in Association work in the last year or so has rendered the old headquarters cramped, the Association has moved to a new home.

On July 1st the offices were moved to

the Canadian Pacific Building, 342 Madison Avenue, New York City, a picture of which appears in this issue of the Monthly. Located on the 18th floor, the new offices provide comfortable and adequate space for the Association to carry on its work. This building, one of the most modern in the city, is located in the heart of the uptown business center. Its nearness to the Grand Central Terminal, its easy access from the Pennsylvania Depot and the many transit facilities at its very door make it an ideal location. Then again it is the center of New York's hotel and shopping districts, distinct advantages to our visiting members, who will find the new headquarters far more adaptable to their needs than the old, both from the standpoint of convenience and from that of increased facilities.



Effect of Gas Saving Devices on Efficiency of Burners and Completeness of Combustion

The following article is a reprint from a report of the Bureau of Standards, Washington, D. C. The tests were carried out with manufactured gas and we believe the results warrant your attention. These devices are in use, and invariably lead to complaints of odor. But, the consumer is still ignorant of the fact that this odor is an indication of the presence of the dangerous Carbon Monoxide. Therefore, we believe this report warrants the widest publicity possible. (EDITOR'S NOTE.)

THE increase in the price of gas during the war and the conservation programs sponsored by public and private organizations have suggested to people with inventive minds numerous means for reducing the consumers' gas bills. As a result, many so-called gas-saving devices have been patented and are being sold to the public. These devices are not, in general, designed with a view to correcting any fault which might exist in the consumer's appliance with the exception of raising the flame where the burner is placed too far below the top of the stove. They occupy much of the space between burner and utensil which is required for the aeration of the flame with secondary air, and also baffle the movement of the products of combustion. The use of these devices invariably causes a spreading and lifting of the flames to such an extent that smothering of the flame results when a utensil is placed above the burner. Under this condition the combustion of the gas is incomplete and a considerable amount of carbon monoxide, a very poisonous gas, is produced.

The Bureau has received a request from the inventor of one of these devices for a thorough test of the appliance. Numerous requests have also been received from other sources for information regarding the safety and efficiency of these appliances. A series of tests was made, therefore, on different samples of gas-saving devices to determine the amount of carbon monoxide produced, as well as the effect on the efficiency of burner operation. The burner used in these tests was a regular front burner of the star type. It was $1\frac{3}{8}$ inches below the top of the grid, the average distance in stoves used with manufactured gas. The burner was adjusted to average practical conditions. The flame was of medium hardness, such as is generally considered a good type of flame. Efficiency tests were made and the products of combustion were analyzed with the burner alone, and with each of the gas-saving devices that are shown in Fig. 1. Nos. 1 and 2 are made of cast iron, No. 3 of pressed steel, and No. 4 of soapstone on a steel frame. A top view of the burner with a gas-saver in place is also shown in Fig. 1.

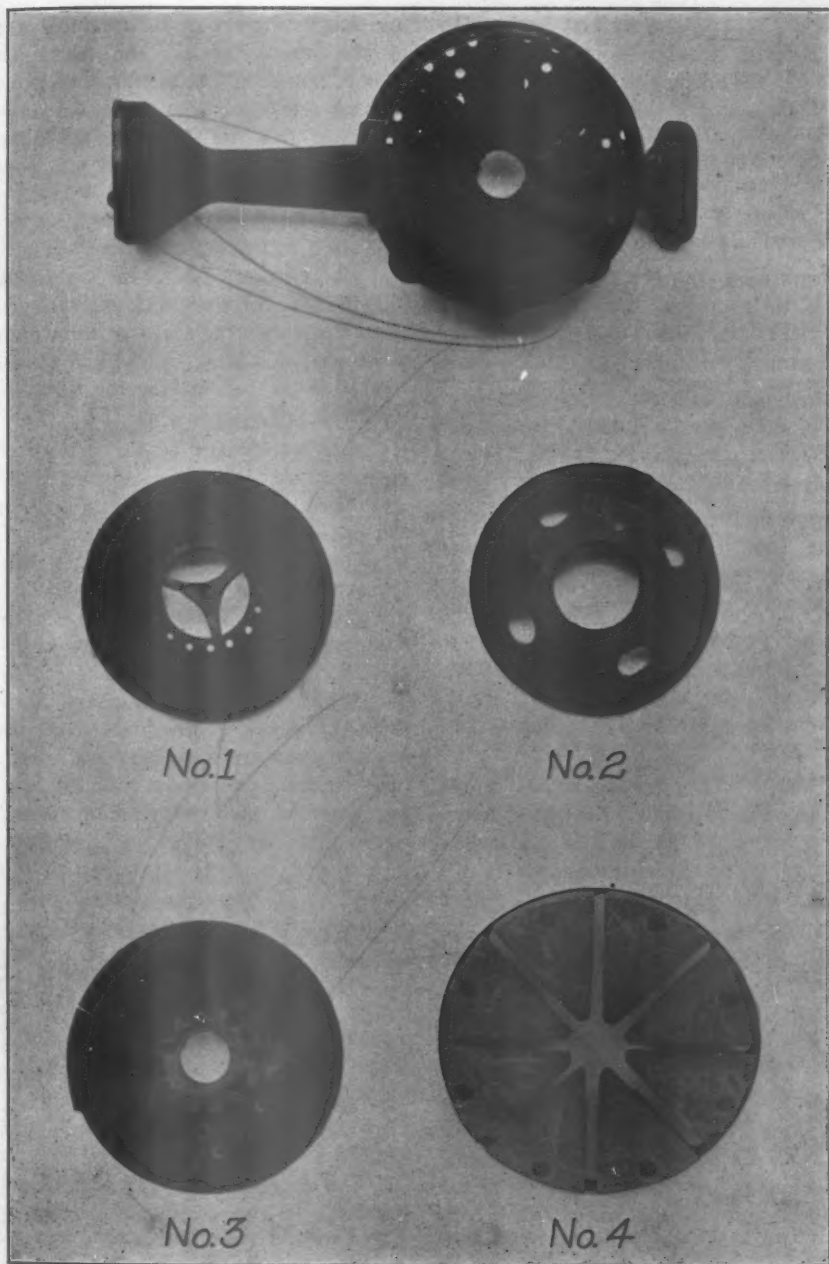


Fig. 1.
Gas Saving Devices Tested and Burner Used With a Gas Saving Device in Place.

A. G. A. MONTHLY

Table No. 1. Tests of Gas-Saving Devices with Regular Front Star Burner 48 Ports, No. 40 Drill; Utensil $1\frac{3}{8}$ in. from Burner

Burner used without gas-saver			
Rate, B.t.u. per hr.	6,255	8,920	11,040
Efficiency—per cent	35.5	36.5	37.6
CO prod'd., cu. ft. hr.	0.0	0.0	0.0
Burner used with No. 1 gas-saver			
Rate, B.t.u. per hr.	6,260	8,910	10,880
Efficiency per cent	37.4	37.5	36.5
CO prod'd., cu. ft. hr.	0.80	0.93	0.79
Burner used with No. 2 gas-saver			
Rate, B.t.u. per hr.	5,440	8,040	9,820
Efficiency, per cent	42.4	39.5	38.2
CO prod'd., cu. ft. hr.	0.56	0.99	0.89
Burner used with No. 3 gas-saver			
Rate, B.t.u. per hr.	5,600	7,940	9,840
Efficiency, per cent	35.1	36.0	36.4
CO prod'd., cu. ft. hr.	1.05	1.07	0.93
Burner used with No. 4 gas-saver			
Rate, B.t.u. per hr.	5,585	8,025	9,950
Efficiency, per cent	35.1	35.6	36.0
CO prod'd., cu. ft. hr.	0.57	1.66	1.99

Table No. 1 gives the results of the series of tests made when the distance from burner to utensil was $1\frac{3}{8}$ inches. The values of efficiency obtained at different rates of consumption, as shown in Table No. 1 are plotted in Fig. 2. This figure shows clearly that there is no justification for the exaggerated claims of economy made for any of the gas-saving devices tested. At the smaller rates of consumption (slower rates of heating) gas-saver No. 2 shows, however, an appreciable increase of efficiency, but this apparent advantage is completely offset by the odor given off and the large amount of carbon monoxide produced. Referring to Table No. 1, and remember-

ing that 0.04 per cent carbon monoxide in the atmosphere is the maximum amount that should be tolerated, even for an hour or two of exposure, it is readily calculated that the concentration in an unventilated room of ordinary size soon becomes very dangerous and unhealthy, if any of the gas-saving devices are operated for a short period of time. If several gas-savers are used at the same time, the hazard becomes extremely acute. Notwithstanding the fact that these tests were made in a large and well ventilated room, the persons making the tests experienced severe headaches.

Claims were made by the makers of gas-saver No. 4 that this device would retain heat and thus continue a cooking process long after the gas is turned off. In order to test the validity of this claim 2 quarts of water were heated to boiling, the gas turned off and the temperature observed over a period of twenty minutes, both with gas-saver No. 4 on the burner and with the burner alone. Since the temperature of the water and the room temperature were the same in each case the amounts of heat radiated from the water in the twenty-minute period were equal. Any difference in temperature in the two tests at the end of this period must, therefore, have resulted from heat imparted to the water by the gas saver. The temperature at the end of the period was found to be 10 degrees higher with gas-saver No. 4 than with the burner alone. This indicates that 41.7 B.t.u. (temperature difference \times weight of water) was given up to the water by the gas saver. A further test was made starting with the gas saver cold and the resulting efficiency was 30.7. The difference between the amount of gas required to heat to boiling where the tests

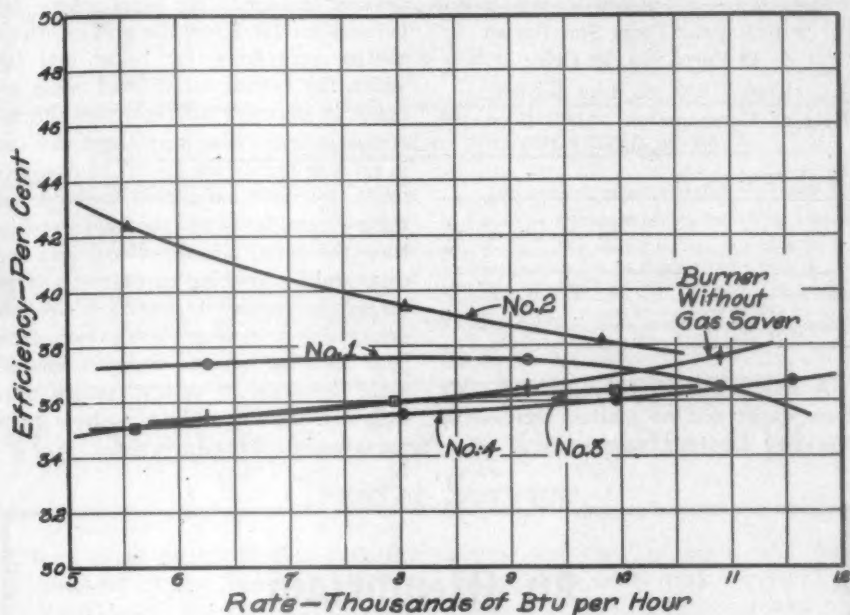


Fig. 2.

Efficiency Tests of Gas Saving Devices Burner $1\frac{3}{8}$ Inches Below Top of Grid.

were begun with the device cold, and with the device hot, is the amount of gas required to heat the gas saver. This amount was 208 B.t.u. Thus the amount of heat required to heat this device far exceeds that imparted to the water after the gas is turned off, so that the tests show its use results in waste rather than economy.

Another series of tests was made with each gas-saver, when the top of the grid was $2\frac{1}{2}$ inches from the burner, in order to determine the effect on the efficiency and completeness of combustion

when the devices are used on stoves with low set burners. The results of the efficiency tests and the amounts of carbon monoxide produced are shown in Table No. 2. The efficiencies obtained were in every case higher than that obtained with the burner alone under these conditions, but the analyses of the products of combustion show that, except with No. 4, the rate of carbon monoxide liberation is just as dangerous. No. 4 did not liberate carbon monoxide at this position and the efficiency was slightly higher than that obtained with the burner alone.

Table No. 2. Tests of Gas-Saving Devices
with Regular Front Star Burner
48 Ports, No. 40 Drill;
Utensil $2\frac{1}{2}$ in. from Burner
Rate of Consumption 10,000 B.t.u. per
hour

	Without Gas Saver	No. 1	No. 2	No. 3	No. 4
Efficiency—per cent.....	30.2	34.4	36.6	32.1	33.0
CO produced—cu. ft. per hour	0.0	1.05	1.03	1.02	0.0

A summation of the results of these tests shows that no marked increase of efficiency can be expected where these

devices are used. In cases where the burners are far below the grid or where the pressure drops far below that for which the burner is adjusted some increase in efficiency will result, but this increase is in no case very large and can in no way justify the claims of economy made by the makers. Furthermore, these devices break up the flames as they leave the ports, mix the flames into one mass and by so doing exclude to a large extent the supply of secondary air necessary for complete combustion. The poor aeration of the flame results in rapid liberation of carbon monoxide in sufficient quantity to be a positive menace to health.

In Memoriam

Emerson McMillin, head of the banking house of Emerson McMillin & Co., 120 Broadway, New York City, died Wednesday, May 31 at his country home, after a brief illness.

Born April 16, 1844, at Ewington, Ohio, he first entered business at the age of 12 as a furnace boy on the iron furnaces managed by his father. Through his indefatigable energy and unconquerable desire to succeed, he gained his education by hard study after hours. He made a practice of thoroughly examining the application of the scientific principles in the iron and gas industries to which he mainly devoted himself.

In 1891 he established the banking house that bore his name, and devoted his entire time to the development and advancement of public utilities.

At the time of his death he was Chairman of the Board of Directors of the American Light and Traction Company, as well as president of many other lighting and traction companies throughout the country, and was a member of the Board of Directors of the American Gas Association.

Mr. McMillin's loss cannot help but be felt by the Association and the entire gas and electric industry, as well as by the many charitable and civic organizations in which he was so keenly interested and who benefited so greatly by his clear sightedness and untiring energy.

GENERAL

CHAIRMEN OF GENERAL COMMITTEES ORGANIZED TO DATE

Accident Prevention—CHARLES B. SCOTT, Chicago, Ill.
Amendments to Constitution—WM. J. CLARK, Mt. Vernon, N. Y.

American Engineering Standards Committee, Representative on—A. H. HALL, New York, N. Y.—
 (Alternate Representative) W. J. SERRILL, Philadelphia, Pa.

Award of Best Medal—D. D. BARNUM, Boston, Mass.
Caloric Standards—J. B. KLUMPP, Philadelphia, Pa.

Chamber of Commerce, Membership in—CHARLES A. MUNROE, Chicago, Ill., National Councilor.
Cooperation with Educational Institutions—F. C. WEBER, New York, N. Y.

Finance—E. H. ROSENQUEST, New York, N. Y.

Gas Safety Code—W. R. ADDICKS, New York, N. Y.—
 (Alternate Representative) DONALD McDONALD, New York, N. Y.

National Fire Protection Association—W. R. ADDICKS, New York, N. Y.

Rate Fundamentals—R. A. CARTER, New York, N. Y.

Rate Structure—J. D. SHATTUCK, Chester, Pa.

Standard Gas Appliance Specifications—W. T. RASCH, New York, N. Y.

United States National Committee of the International Commission on Illumination, Representative on—HOWARD LYON, Gloucester, N. J.

Nominating—A. P. LATHROP, New York, N. Y.

The Accident Prevention Committee Offers Greater Service

IT is to be regretted that company members of the American Gas Association do not more fully avail themselves of the services of the Association. This is particularly true with reference to the smaller operating company members and the possibilities of service to them from the Association's Committees.

The accident problems of any industry have an important bearing on efficient and economical operation and particularly in those industries operating on such a small margin of profit as to require careful economies. Not only are lessened costs of accidents involving personal injury and destruction of property possible, but systematic plans of accident prevention also bring about lower casualty and property damage insurance rates and no company can afford to lose sight of the opportunity to make a substantial saving by accident prevention.

For several years this Association has provided an Accident Prevention Com-

mittee composed of men who have specialized in safely work. Some of the members of this committee are men who devote their entire time to the study of accident prevention and making recommendations for the elimination of preventable accidents involving property loss or injury to employees and the public. The present Accident Prevention Committee of the American Gas Association has been particularly diligent in its work and has by careful investigation and study promulgated through its reports some very valuable recommendations which should be used to advantage by the membership. Not only may this committee be of service by publishing these Annual Reports, but it could be of even greater service by a closer, constant contact with our members. The present committee urges operating companies to take up with it any problems of safety that may develop in the solution of which the committee could be of any assistance. If operating

companies would avail themselves of this offered service, the committee would serve even a more useful purpose than it now does.

Communications are solicited by the Accident Prevention Committee from any company desiring expert advice with reference to the safeguarding of any mechanical device or appliance or the safe guarding of any practice and those making such inquiries are assured that these requests will receive very prompt and careful attention and the committee hopes that this invitation will

be very generally accepted and that it may by this procedure better serve the Association and the industry.

The committee should receive details of serious accidents or serious accident problems so that it may make a proper study of important contributory causes which might otherwise be overlooked. Such communications should be addressed to either Charles B. Scott, Chairman, 1636 Edison Bldg., Chicago, Ill. or to William G. Rudd, Secretary, Peoples Gas Bldg., Chicago, Ill.



Can You Place Them?

THE Association Headquarters are beginning to receive letters from engineering students who desire to enter our industry. This is a healthy indication that our educational effort is beginning to have effect. The next thing should be placing these men. Our Committee on Cooperation with Educational Institutions has taken their cases up, but we believe it worth while to give them this space so that no opportunity may be overlooked.

The applicants are:

A. de Diego, 164 W. North Ave., Atlanta, Ga., who says in his letter: "I am highly interested in this work. I am a graduate this year from the Mechanical Engineering Department of this School (The Georgia School of Technology) and wish work in the gas industry."

Frank P. Well, New Canaan, Conn., who says: "I expect to graduate from the Mechanical Engineering Course at Pratt Institute (Brooklyn, N. Y.) in June."

Robert J. Hilgenberg, 251 Lafayette

Ave., Brooklyn, N. Y., who says: "I am a student at the Pratt Institute (Brooklyn, N. Y.). I am 25 years of age and expect to graduate this June. It is my desire to affiliate with a corporation where I can start at the bottom and advance."

G. R. Nordin, 276 Prospect St., New Haven, Conn., who says: "I am a self-supporting student in the Electrical Engineering Department of the Yale Sheffield Scientific School, class of '23, and am looking for a position during the summer. I have from June 12 to Sept. 2, inclusive, available for occupation."

R. C. Broach, Experimental Engineering Department, Georgia School of Technology, Atlanta, Ga., who says: "I graduated with honors from the Georgia School of Technology in June, 1921, with the degree of Bachelor of Science in Mechanical Engineering."

We believe these cases are the opportunities that the industry has been waiting for. We also believe, that, if possible, these young men should be placed.

The Gas Industry as Your Future Field

The following is an address delivered by Mr. R. C. Congdon before the students of the Georgia School of Technology. (EDITOR'S NOTE.)

THE American Gas Association held its Annual Convention last October in Chicago, and it was my privilege to be present at that meeting. I have with me a photograph showing a portion of the large assembly of gas engineers, managers, and executives from all parts of the United States who attended the meeting. I would like you gentlemen to look at this picture and realize that most of these men were educated in our American colleges and universities. It would be interesting to know how these many men found their way into the gas business. The American Gas Association is calling the attention of college men throughout the country to the opportunities afforded by the gas industry. There is not much in most college courses to suggest the gas business as a profitable field for the engineer upon his graduation. Until recently, there was no university having strictly a gas engineering course. Electrical engineers are made familiar with the engineering details of the electrical business. They are taken on visits to power plants, and have a pretty general idea, upon graduation, as to the nature of the work they must do in order to get ahead in their chosen vocation. The best the colleges do for the gas engineer is to provide engineering courses, for example, mechanical, civil, and chemical, any one of which furnishes a foundation upon which to develop and progress in the gas business.

It is not surprising when we study the matter that most people are unfamiliar

with our business. The commodity we manufacture is not susceptible of spectacular display, and is used principally in the kitchens of homes, in restaurants, in clubs, and in numerous manufacturing establishments. Little do people realize the enormous value of the by-products, coke, ammonia, and tar, that come from the gas plants of the country. On the other hand, electricity is in evidence everywhere. The street cars pass before our eyes in every principal city in the country; stores, hotels, theatres, and homes, are lighted by electricity; and there are many other uses which cause the public to realize the wide application of electricity in our everyday life. Though the electrical industry has the advantages enumerated, they have not failed to advertise extensively, but the gas industry has been sadly lacking in this respect.

Probably, this is the first time any one has ever brought to your attention any details of the gas business. You men, about to start out in the business world, are probably desirous first of all to obtain congenial work. There is nothing so boring and tiresome as to work from morning to night at something in which you have no interest and never expect to have. On the other hand, if you find your work teeming with interest, it is difficult to go to bed and rest until the next day.

Engineering work connected with the gas business is exceedingly interesting. It requires a knowledge of electrical,

mechanical, chemical, and civil engineering and the problems are so varied that interest never lags.

The problem of the gas engineer is to deliver gas at the burner at the lowest possible cost. To do this, he must have a thorough knowledge of coal and coke handling machinery; he must understand the construction and operation of coal and water gas apparatus, which includes the coal gas benches, ovens, or vertical retorts, water gas generating apparatus, apparatus for the removal of tar, ammonia, and sulphur, meters for measuring the gas, and holders for storing the gas, and apparatus for the recovery of by-products. In addition to this, he must operate in many instances quite an elaborate electrical outfit, as well as a steam boiler plant; he must be thoroughly familiar with gas distribution systems, and know what to do in case of emergencies.

The gas supply in our cities very seldom fails. In Atlanta, the gas has not been out since Sherman destroyed the plant during the Civil War.

When accidents do happen, there is very limited time in which to make repairs, and the gas engineer must be cool and resourceful when emergencies do arise.

To give you engineers a more intimate idea of engineering work at the gas plant, I will say that within the last eighteen months the Atlanta Gas Light Company has installed a new charging machine, a new type coal conveyor, a waste heat boiler to recover waste heat from the coal gas plant, automatic dampers in the stacks of the boilers, new water gas condensing plant, new water gas elevated purifiers, a new 11-foot double superheater water gas apparatus, a new blow-

ing plant, the blowers being driven by 250 H.P. electric motors with steam turbine units for reserve. From this, it is to be seen that the work is by no means all chemical, as is supposed by many people. Visitors to the gas plant are almost always surprised at the great array of machinery.

When you have become an efficient gas engineer, you should be in line to manage a gas company. This work is extremely interesting, and you are brought to realize how closely your work touches the lives of every one in the community. Think of all the people in the city whose breakfasts must be cooked with gas before they go to work. Think of all the dishes that must be washed through the use of hot water delivered from gas water heaters. Think of all the rooms that are made comfortable in the winter time with gas heaters, and then, remember that in addition to these uses of gas, there are thousands of others, among which may be mentioned gas irons, large bakery ovens, incubators, melting pots, china and glass kilns, tire heaters, annealing ovens, stereotype machines, bench furnaces, singeing machines, surgical equipment, etc.

I would like to go on and tell more of the detail work of the gas manager, and of the work of the executive officials of the gas company. The gas engineer may reasonably hope to attain these higher positions through close application, good luck, good health, and hard work.

Perhaps, you would be interested to know that a number of graduates of this school began their engineering careers at the Atlanta Gas Works. A number of years ago, one student, after graduating in the mechanical engineering course, worked several years for our company,

and left to take a better position with the Stone & Webster Company. He is now General Manager of the Haverhill Gas Company, Haverhill, Mass. Another, a graduate of mechanical engineering several years ago, worked his way through college, putting in as much time as possible at the local gas plant. Upon his graduation, he was employed at the works, and rose to the position of Assistant Superintendent. During this time, he acquired a wife and home. I know of another Tech engineer, a graduate in the chemical department, who was not so fortunately situated. He had been out three years, was not married, but wanted to be, and his prospects with the company he worked for did not look any too bright. I was able to employ the stranded engineer, who, since coming with our company, has told me that he feels like a new man, that the work is so diversified and so interesting, and the field so large.

It must be borne in mind that practically every city and town has a gas plant, and this is true in all countries. There are 966 companies in the United States engaged in the manufacturing and distributing of gas. Of this number, 444 are water gas plants, exclusively; 220 coal gas, exclusively; and 145 coal and water gas mixed. There are 68,450 miles of gas mains, and the population served is 45,997,000. During the year 1920, there were 7,778,000 tons of bituminous coal used, and 1,953,000 tons of anthracite coal. In addition to these, there were consumed 2,025,000 tons of coke, and 954,516,000 gallons of oil. The annual sales of gas since 1901 show an increase of over 300%. The future of the gas business appears brighter than ever. While electricity to a great extent has

supplanted gas for lighting, it cannot compete with gas in the supply of heat energy.

I will now endeavor to place before your mind's eye the physical properties of the gas company which have to do with the manufacture and distribution of the gas up to the customer's premises.

In a city of several hundred thousand people, let us assume that the plant is a combined coal and water gas plant, and that the coke from the coal gas is used in the manufacture of water gas. Local conditions would determine to a certain extent the character of some of the equipment, but, if an inland city, the coal would probably be received on the trestle and dumped directly into a hopper, from which it would fall onto a reciprocating feeder, into a coal crusher, and thence onto a conveyor arranged to deliver the coal into an overhead bin in the retort house. From the bin, the charging machine would receive the coal, weigh it, and charge it into the retorts of the benches, that is assuming that the plant we are describing is a thorough horizontal retort plant. The coal gas unit might be coke ovens, or vertical retorts, each requiring a different type of mechanical apparatus for the handling of the coal. After the coal has been in the retort a sufficient length of time to drive off the volatile matter, the coke is pushed out by a discharging machine and is handled in various ways, one of the most customary being to deliver the coke onto a DeBrouwer conveyor which may be operated to deliver coke to storage or by reversing the driving mechanism deliver the coke at a point where it can be most economically conveyed to the water gas plant. The coal gas leaving the retorts is drawn away from the retort house through a re-

tort house governor by gas exhausters, and is forced by these machines through condensers, tar extractors, and scrubbers, for the purpose of lowering the temperature and removing naphthalene, tar and ammonia, together with some sulphureted hydrogen and CO_2 . After passing the ammonia scrubber the gas goes to the purifiers where the sulphureted hydrogen is removed. From the purifiers the gas passes through the station meter and then into the storage or distribution holder. The water gas is made by passing steam through incandescent coke or coal. The resulting blue water gas is delivered into a compartment of the machine where it is mixed with oil gas formed by vaporization of gas oil. Water gas contains no ammonia and the purifying apparatus with the exception of ammonia scrubbers is similar to that used in the purification of coal gas. After the water gas is metered, it is mixed with the coal gas, and the two gases are stored in the same holder.

I cannot go into details with reference to economical operation of such a plant, but as before stated, the problems are varied and interesting.

From the gas holder, the gas passes through the system of street piping, and is delivered to the customers' premises. As the community grows, the method of distribution may change, and the distribution piping system is modified from time to time to insure adequate gas pressure at all of the burners in the city.

Until comparatively recent years, the gas was made to flow to the customers' burners by the weight of the gas holder in which the gas is stored. When this weight is no longer adequate, the usual custom is to install so-called pushers which draw the gas from the holder and

force it through the city mains. If gas is to be delivered to some distant town, it is quite frequently pumped under high pressure. In Atlanta, we have all three systems of gas distribution, low pressure, this being gas delivered through the pressure furnished by the weight of the holder, intermediate pressure furnished by pushers, this pressure reaching no higher than 5 pounds, and high pressure where gas is delivered to College Park, and East Point, leaving the gas works under 25 pounds pressure.

After manufacturing and delivering the gas to the company's customers, the business then becomes one of service, and the company must study with most diligent care how to maintain the esteem and good will of its patrons. This would be a comparatively easy matter if it were not for the unprincipled politicians in nearly every community. No matter how efficient the company might be, if there is a group shouting from the house-tops calling the company "robbers," "octopus," etc., there is bound to be a certain element of the people who will follow these men and make the conducting of the gas business much more difficult than it otherwise would be. Again, the gas companies are allowed to charge only what the commissions specify. The law as it is interpreted today provides that the public utility shall be allowed to earn a fair return on the value of the property devoted to the public service. What the value is and what a fair return is, the commissions undertake to decide. If the company through regulation is not permitted to earn a sufficient amount to enable it to pay operating expenses and a return sufficiently attractive to induce the people in our country to invest in the public utilities, the company cannot raise

the necessary money to take care of the growth of the community, and which must be served by the utility. If the return is insufficient, the service will suffer, no matter how efficiently the plant is operated. To conduct a public utility successfully these days requires ability of no mean order.

Many of the high paying executive

positions are now being held by gas engineers throughout the country. These positions in the natural course of events will be open to younger engineers as time goes on. I wonder if some of you men will gain these positions through the efforts of the American Gas Association in conveying its message to you?



Proceedings of the National Association of Railway and Utilities Commissioners

THE annual convention of the National Association of Railway and Utilities Commissioners, composed of the members of the various state public service, railway and utility commissions, and also of the Interstate Commerce Commission of the United States, will be held beginning September 26th at Detroit, Michigan. It is expected that, among other matters of importance, a permanent plan of cooperation between the Interstate Commerce Commission and the various State commissions, looking toward the elimination of conflicting rules and orders, will be perfected.

This report should be of vast interest to all members of public utility organizations and the executives of such corporations.

The official reporters for the Association will print and bind in cloth the official report of the N. A. R. U. C. convention held in October, 1921, at Atlanta, Ga. The reports of these annual conventions contain valuable data, statistics, reports and discussions on matters affecting all electric light, electric railroad and public utilities under the jurisdiction of the state commissions and the Interstate Commerce Commission, including

reports and discussions on rates, charges, valuation, State and Federal legislation, public ownership and operation, uniformity of rates, etc.

Orders for copies of the 1921 and 1922 convention proceedings should be placed with as little delay as possible with The State Law Reporting Company, Official Reporters for the Association, whose address is 233 Broadway, New York City. The price for each copy of the proceedings of each convention is \$4.00. There will be no second edition when the first is exhausted, and necessarily maximum orders should be placed with initial order. The bound copies of the 1921 convention proceedings will be mailed in July. No more orders can be accepted after the edition is subscribed for. The report of the 1922 convention will be distributed in the early part of January, 1923, to those ordering copies.

Necessarily both reports will be widely different and while possibly, in some instances, covering the same subjects, will treat of them from altogether different angles, and the 1922 report will in no way be a duplication of, but rather a supplement to, that of 1921.

Nominations for Officers and Directors

In accordance with the By-Laws of the American Gas Association, the Nominating Committee consisting of A. P. Lathrop, R. A. Carter, F. W. Frueauff, P. H. Gadsden, J. H. Eustace, and H. F. Norton, has presented the following report for publication:—

The Nominating Committee, elected at the Third Annual Convention to nominate officers and directors of the Association to be voted upon at its next annual meeting, has unanimously agreed upon the following nominations:

President, R. B. Brown, Milwaukee, Wisconsin
Vice-President, J. B. Klumpp, Philadelphia, Pa.
Treasurer, H. M. Brundage, New York, N. Y.

For members of the Executive Board, to serve two years:

Charles A. Munroe, Chicago, Ill.
P. A. Gadsden, Philadelphia, Pa.
Henry L. Doherty, New York, N. Y.
S. E. DeFrese, Chattanooga, Tenn.
L. R. Dutton, Jenkintown, Pa.
H. S. Reeside, Washington, D. C.
J. S. DeHart, Newark, New Jersey
Wm. M. Crane, New York, N. Y.

ALANSON P. LATHROP,
Chairman, Nominating Committee.



Customer Ownership Literature

MEMBER companies interested in the customer ownership movement or who anticipate selling junior securities to their customers, may now obtain from this office, through the courtesy of the Customer Ownership Committee of the N. E. L. A., a set of valuable literature describing methods that have been used recently in the most successful campaigns.

Three pamphlets constitute the set. One is a committee report elaborately illustrated giving a list of companies which have held campaigns and the re-

sults obtained. Another pamphlet is entitled "Successful Methods and Practices for Customer Ownership Campaigns." It describes every important sales feature of a campaign and is brim-full of good ideas. A third pamphlet is entitled "Employees' Sales Manual." It is a hand book of instruction for the employee who has had no previous experience in selling utility securities.

We have a limited supply of these pamphlets on hand. Copies will be sent free upon request.

ACCOUNTING SECTION

EWALD HAASE, Chairman

J. W. HEINS, Vice-Chairman

H. W. HARTMAN, Secretary

MANAGING COMMITTEE—1922

At Large

DAVIDSON, H. C., New York, N. Y.
DORRING, W. A., Boston, Mass.
LA WALL, H. J., Philadelphia, Pa.
LAWRENCE, JAMES, New York, N. Y.
MEYERS, W. J., New York, N. Y.
PETTIE, W. H., Newark, N. J.
SAUER, W. A., Chicago, Ill.
SCHMIDT, JR., WM., Baltimore, Md.
SCORELL, E. C., Rochester, N. Y.
SMART, BURTON, Portland, Me.
STEBBETT, W. G., Chester, Pa.
WILSON, P. A., Philadelphia, Pa.

Representing Affiliated Societies

ARMSTRONG, J. J., Toronto, Can. (Canadian)
BORDEN, A. W., Hastings, Nebr. (Iowa)
DEAL, E. C., Springfield, Mo. (Missouri)
HAASE, EWALD, Milwaukee, Wis. (Wisconsin)
HOUGHTON, W. E., Los Angeles, Cal. (Pacific Coast)
HOT, CHAS. W., Glassboro, N. J. (New Jersey)
JAMES, F. M., Aurora, Ill. (Illinois)
McCABE, J. B., Dallas, Tex. (South Central)
NORTON, W. F., Nashua, N. H. (N. E. Gas Eng.)
PORTER, EDW., Philadelphia, Pa. (Pennsylvania)
SCORELL, E. C., Rochester, N. Y. (Empire State G. & E.)
SHEARON, B. P., Hammond, Ind. (Indiana)
STOTHART, E. C., Charleston, S. C. (Southern)
SWANSON, J. K., Jackson, Mich. (Michigan)

CHAIRMEN OF SECTION COMMITTEES ORGANIZED TO DATE

Consumers Accounting—W. A. DORRING, Boston, Mass.
Continuous Inventory of Fixed Capital—H. C. DAVIDSON, New York, N. Y.
Fire Insurance Rates—P. A. WILSON, Philadelphia, Pa.

Nominating—W. H. PETTIE, Newark, N. J.
Standard Classification of Accounts—W. J. MEYERS, New York, N. Y.
State Representatives—W. A. SAUER, Chicago, Ill.

Progress in Fire Insurance Rate Reduction

P. A. WILSON, Chairman, Fire Insurance Rates Committee, Philadelphia, Pennsylvania.

GR^EAT bodies move slowly, and this seems to be particularly true of that great economic structure familiarly known as the insurance business.

More than two years ago it was suggested to the fire insurance interests by representatives of this Association that the schedule for measuring the fire hazard of gas plants was antiquated and was producing more premiums than were warranted by the loss experience. On examining their own records the insurance company executives agreed, and proceeded to construct a new schedule.

The writing of the new schedule has now been completed by actuaries of the Central Traction and Lighting Bureau, the central advisory bureau of the insurance companies writing insurance on utility properties, and has been submit-

ted by this Bureau to all Rating Boards throughout the United States. Up to this time the new schedule has been adopted by the local rating authorities in the following states: Minnesota, North Dakota, Iowa, Illinois, Indiana, North Carolina, South Carolina, Georgia, Florida, Alabama and parts of Pennsylvania. While the adoption of the new schedule is not mandatory it is believed that it will be adopted in all states within a reasonable time. All gas companies in the above named states have been notified of the adoption of the new schedule, and as fast as the schedule is adopted in other states notices will be sent out to all Companies in the territories affected.

It must be remembered in this connection that the construction of a rating

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schedule is the prerogative of the insurance companies, subject to the approval of State Insurance Commissioners, in most states, and that the new schedule represents the ideas of what a proper schedule should be, and not necessarily the opinion of the gas industry or of this Committee. In other words, this Committee regards the new schedule as yet as an experiment and a step in the right direction, but not necessarily the last word on the subject. While there is no question that the new schedule is more readily adapted to the measuring of hazards of gas plants, and that the base rates are lower in the new schedule, there are so many factors that may affect a final rate, that the Insurance Committee of this Association wishes to urge on member companies the closest cooperation with this Committee to the end that the important end being sought, that is, a reduction in the cost of insurance, is brought about.

It should be clearly understood that the adoption of a new schedule does not mean, *per se*, a reduction in rates. It means rather that a new yardstick has been adopted by which the physical hazards at each plant individually may be measured. In other words, to receive any benefit under the new schedule it will be necessary to have it applied specifically to each individual plant.

The Insurance Committee would, therefore, like to make the following definite suggestions which seem to apply at this time:

1. Members in states where the new schedule is **not yet adopted** should take the matter up, preferably through their insurance agents or brokers, and show by their activity that they are interested in the subject. It is a good schedule, and should be universally adopted.

2. If and when the new schedule is adopted, a close study of present rate charges should be made, endeavoring to show a comparison between the present rate and the possible rate under the new schedule before applying for a re-rating. The new schedule should ordinarily produce a lower rate, but conditions may be such that it will not in individual instances.

3. Member companies, and non-member companies as well, should cooperate with this Committee and return the questionnaire attached to letter of notification showing their insurance record for last year. Copies of the letter of notification and questionnaire are reproduced herewith, and if your company is located in the States where the new schedule is effective and you have not yet received a copy of this notification, please advise the writer as chairman of the Committee, c/o The United Gas Improvement Company, 1401 Arch Street, Philadelphia, Pa. While it may not seem to the individual company of great importance that their questionnaire should be returned, yet it is absolutely necessary for this Committee to have statistics on which to work, and these statistics can only be furnished by the companies themselves, and the questionnaire has purposely been made very simple in order not to cause any company the slightest inconvenience.

TO OUR MEMBER COMPANIES:

The Insurance Committee of this Association is very glad to announce that the new schedule for the rating of fire hazards of gas plants, published by the Central Traction and Lighting Bureau, of New York City, has been adopted by the local Board of Fire Underwriters in your territory, and is now ready for application.

This new schedule, which has been

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published as the result of negotiations carried on with the Underwriters by representatives of this Association shows a reduction of approximately 25 per cent from the schedule previously in use.

Your Committee has examined the new schedule with the result that it recommends to member companies that they consult fully and freely with their local insurance agents placing their insurance as to its application, keeping in mind that while the new schedule shows the decrease as noted above, the results of its application will depend entirely on the physical condition of the property at the time the new schedule is applied, and on the manner in which the old schedule was applied when the present rate was promulgated. Thus, if the old schedule was properly applied and all physical conditions remain the same, the reduction should approximate 25 per cent; if improvements have been made in the plant tending to decrease the fire hazard the decrease may be more; on the other hand, however, if in applying the old schedule proper charges were not made (and this sometimes happens) and conditions tending to increase the fire hazard exist which did not exist at the time of the previous rating, the result of a re-rating will not be so favorable. It is for these reasons that we recommend the advice of your own insurance advisors.

The Central Traction and Lighting Bureau has recommended to local rating boards that the new schedule be made effective as of April 15th, regardless of the time the re-rating is made but it should be remembered that there is no obligation on the part of local rating boards to comply with this suggestion, and as rating boards will be confronted with the task of rating a number of plants in their jurisdiction it is possible that there will be some delay in having a re-rating of your plant after application is made, and that the new rates will apply only as of date of the re-rating, which is really the usual procedure.

It is the opinion of your Committee

that nothing can be gained by placing a copy of the new schedule in the hands of member companies, as it is a rather complicated document, capable of being applied only by an expert rater, but after the re-rating has been made it is your privilege to obtain from the local Board of Underwriters the "make-up" of the rate, showing what charges have been made for deficiencies, as well as suggestions as to improvements, and it is strongly urged that you have your insurance agent obtain this information, for it often happens that some deficiencies for which charges are made are readily corrected, at little expense, or slight improvements can be made that will result in a further rate reduction.

It is the further recommendation of your Committee that certain physical conditions about plants should be brought up to standard before any re-rating is ordered. While many improvements could be recommended that would tend to reduce the rate, the carrying out of these recommendations would involve more or less expense, and for that reason they are not being made. Rather it is recommended that plants be rated "as is" except that the following recommendations are made for the reason that the expense involved is not great, or for the reason that they should be carried out in any plant for its own protection regardless of the fact that it is to be re-rated:

LIGHTING: In purifier and oxide sections to be by incandescent electric lights in vapor-proof globes, with keyless sockets, swinging lights also protected by wire guards. Switches and fuses to be located outside room. Gas lights to be located outside of room with light thrown through glass. In general, open flame gas lights not recommended in manufacturing sections where the ignition of gas is possible.

HEATING: In purifier and oxide sections, a serious charge is made if heat is supplied by open furnaces or lights

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of any kind. Heating should be by steam, hot water or hot air produced in separate building with approved cut-off.

STACKS: A charge is made if resting on wooden floors, beams, brackets or joists, or if metal stack runs through combustible roof windows or side of building.

BENZOL: To be stored outside building, preferably in approved pit.

OILS: It is recommended that the quantity of oils, paint, etc. stored in any building be kept to the minimum, and that all supplies of this nature in excess of the amount required for daily consumption be stored in a separate oil room, completely cut off from any other building.

SMOKING: "No smoking" signs must be posted in Purifier Section, and should be posted in garages and at other locations about the manufacturing plant.

EXTINGUISHING APPARATUS:

Five fire buckets or one chemical extinguisher should be provided for each 2,000 square feet of floor area. Fire pails should be in good order and filled and extinguishers labeled to show that they have been filled within a year. A credit is allowed on each one story building within 150 feet of a fire hydrant, if hydrant is equipped with 150 feet standard 2½" hose attached and properly housed, with one inch nozzle, wrenches, etc.

OXIDE: Not to be in contact with woodwork. Also applies to lime.

HOUSEKEEPING: A charge is made for objectionable features of management of condition of premises, such as untidiness, carelessness, lack of approved waste cans, lack of drip cups under bearings, etc. Charges from this source at least should be eliminated at all plants.

FIRE AREAS: Should be kept to a minimum. It happens that in groups

of buildings such as constitute many gas plants, the various sections take different rates, but due to the fact that wall openings exist between sections the entire group must take the rate of the highest rated section, as the entire group must be considered as one fire area. The possibilities of installing proper cut-offs should be studied with a view of reducing the fire areas.

It is, of course, the purpose of this new schedule to bring down the cost of insurance on gas plants, as it has been demonstrated by this Committee that the cost has been higher than justified by the loss experience, and while there is no question as to the sincerity of the Underwriters in promulgating a new schedule intended to produce lower rates, it is the sense of this Committee that some check should be made of the results of its operation, as only in that way can we be sure that it is bringing about the results desired. It is the opinion of your Committee that the member companies are not so much interested in the intricacies of schedule rating, intended to measure the fire hazard at individual plants, as they are interested in knowing how much premium income to the insurance companies will be produced and what the total fire losses of the industry are. Obviously, the record of any one member will show nothing, so that your Committee desires, with the cooperation of member companies, to complete this work. We are always being told individually that while we may not be having any fire losses, the other fellow is, so that we never know whether the amount paid for insurance is correct or not, and your Committee feels that if this one point can be definitely settled it will be worth the effort involved.

It is requested, therefore, that each member advise this Committee as to the amount of fire insurance in force as of December 31, 1921, together with the amount of premium paid and the fire losses for the same period. When the

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new schedule has had time to be fully applied this same information will be requested for the year 1922. It is realized that while this will be a tedious procedure, the results already obtained by

this Committee would seem to justify your full cooperation, especially in view of the fact that your Committee is not entirely satisfied that yet lower rates cannot be obtained.

.....
(Name of Company)

.....
(Address)

Please fill out and return to P. A. Wilson, Chairman, Insurance Committee, American Gas Association. Address, 1401 Arch Street, Philadelphia.

.....
For Year Ended December 31, 1921

Amount of Insurance in
force as of 12-31-21

Premium paid
during year.

Losses during
year.

.....
.....
.....
YOU ARE NOT ASKED TO GO BACK OVER OLD RECORDS— A RECORD OF LAST YEAR ONLY IS DESIRED.

IT IS NECESSARY TO HAVE STATISTICS IF RESULTS ARE TO BE OBTAINED. WON'T YOU PLEASE CO-OPERATE?

Member companies having combination plants should segregate their records to show statistics on gas plants only. What is desired is the cost of insurance on gas plants and the fire losses on gas plants, but if the exact segregation is not available send in whatever figures you have.

.....
(Signature)

Correction

Through an error in our notice in the June issue referring to Mr. S. M. Kennedy's book entitled "Winning the Public", the McGraw-Hill Book Company, the price was quoted at \$2.00 a copy. This should have been \$2.50 a copy with a price of \$2.00 to public service companies in quantities of \$25.00 or over.

*Accounting Methods of Public Service Corporations

W. R. EMERSON, Secretary and Treasurer, Oklahoma Gas and Electric Company, Oklahoma City, Oklahoma.

ACCOUNTING plays a part of prime importance in the endeavors of public utility properties to increase their revenues, improve the efficiency of their operations, and thereby secure reasonable rates to their owners. In addition to reflecting the sources and disposition of revenues, utility accounts are designed to show financial conditions and to safeguard the property employed in the business.

These basic functions are embodied or summarized in revenue and expense, classification, income, profit and loss statements, and balance sheet forms. These summaries are developed from an accounting system peculiar to a great extent to utility companies.

Development of Systems: The utilities in the various groups have exchanged experiences through their national associations, and a considerable number of years ago formulated standard accounting systems which came into common but by no means universal use. These systems became inadequate to handle the vastly increased volume of utility business, and more comprehensive new systems had been formulated by the utility accounting associations when

commission jurisdiction came to be a factor in accounting procedure. The accounting systems subsequently prescribed by the utility commissions are to a large extent the result of recommendations of the accounting representatives of utilities. Standardization of all methods which would facilitate comparisons between utilities and simplify auditing of accounts has not yet been accomplished, because most of the state utility commissions have adopted various special features, which they considered necessary for their peculiar conditions and requirements.

As it is impossible in the brief space of time to give more than a summary of utility practice, we will dwell more upon a general rather than a technical knowledge of utility accounting methods.

To a considerable extent the subject necessarily centers about the systems which have been adopted in various states where commissions have jurisdiction over the utilities. As features of these systems peculiar to utility accounting lie largely in classifications of revenue and expense, these classifications will be given particular attention.

*This is one of a number of lectures prepared by executives of the Oklahoma Gas & Electric Company and used in a series of class meetings and conferences for all members of the Oklahoma City division. Evidently Mr. Emerson's lecture was prepared prior to the promulgation of the Uniform Classification of Accounts for Gas Corporations by the National Association of Railway and Utilities Commissioners, as he makes no mention of this classification in his reference to Public Service Commission accounting regulations.

The success of these inter-company conferences (the Oklahoma Gas & Electric Company is a member of the Byllesby Engineering & Management Corporation) has been so marked that several companies have had copies made of the lectures and distributed to their employees. The attention of our Accounting members is particularly called to the Accountants Convention held by several Byllesby properties on March 13 and 14 at Oklahoma City. Mr. W. R. Emerson, Secretary-Treasurer of the Oklahoma Gas & Electric Company can furnish full information as to this conference to members interested.

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The following are important books, accounts and records which are essential to proper accounting of a utility doing business such as ours:

- Customers Applications
- Meter Reading Books
- Meter Record Books
- Customers Ledgers
- Customers Billing Cards
- Cash Book showing Cash
- Receipts and Disbursements
- Voucher Register
- Work Order Register
- Operating Ledger
- General Ledger

As various of these records as well as many others will be taken up more in detail by Mr. Smith and Mr. Lester no attempt will be made to include many unimportant auxiliary and subsidiary accounts in regular use.

Public Service Commissions now have jurisdiction over all common utilities in practically all states in the United States. A few of these commissions have not disturbed existing accounting methods in use by the utilities except as has been necessary to enable the utilities to render annual reports in a prescribed form. On the other hand, a large number of commissions, of which our Oklahoma Commission is one, have definitely defined and prescribed all forms of accounts to be used by utilities under their jurisdiction, and require that no other accounts be kept without special permission of the commission.

These accounting systems include not only detail accounts of revenues, expenses and income, but also prescribe a form of balance sheet of all assets, liability and reserve accounts.

The abandonment of old systems has usually resulted in a distinct gain

through the greater detailed and more modern principles embodied in the carefully developed new systems. Many of the commissions have come to recognize the need of greater refinements in accounts of large companies than in small ones, and grade their classifications in accordance with the gross earnings or population served.

Property Accounts

For the purpose of protection to investors and a proper determination of what constitutes additions to the property of a utility it is customary to keep a careful record of expenditures made for new property. This property account (also commonly known as plant account) is divided into a considerable number of separate accounts which represent such classifications as the physical units of the property suggest. As additions or extensions are made their cost is distributed among the appropriate accounts, care being taken that no items are included that should be charged against income. On the other hand, it is important that items which properly belong to plant account are not erroneously charged against income. It is not necessary to go into details of these accounts other than to commend the practice found in some classifications of having as close correspondence as possible with maintenance accounts in expense classifications so that the relation between maintenance and cost of various elements in the property may be determined.

For convenience in tabulation and to assist in depreciation calculations, property is commonly divided into two groups, called tangible and intangible, although the terms "physical" and "non-

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physical" might be more appropriate. The intangible property included such items as organization, franchises, rights and licenses. The tangible group has sub-groups covering land, buildings, equipment of various kinds, and general expenditures. The last sub-group contains such accounts as engineering and superintendence, legal expenses and damages, interest, taxes, salaries and office expenses during construction, etc. These accounts are particularly mentioned because they cover matters about which most differences arise in rate regulation cases, making it of special importance to accumulate definite figures of actual cost to be used instead of experts' estimates or speculations on the subject.

Revenue Accounts

The earnings of the utilities are divided in modern classifications into two main groups called operating revenues and non-operating revenues. The former includes the earnings derived from the regular business of the utility, or from joint use of its property by other utilities. Non-operating revenues include, generally, net receipts from leases, investments, and other sources indirectly connected with the utility business or the property therein employed. In sub-dividing operating revenues the purpose is to separate important sources and kinds of business so that progress and development of the business may be studied in detail. The following is the classification of operating revenue in our Electric Department:

Municipal Arc Lighting
Municipal Incandescents
Residential Lighting—Metered
Commercial Lighting—Flat Rate

Commercial Lighting—Metered.
Power Service—Metered
Street Railway Service
Signs—Flat Rate
Forfeited Discounts
Merchandise Sales Profits
Miscellaneous Receipts.

The operating revenue accounts in the Gas Department are similarly divided, and are as follows:

Commercial
Domestic
Manufacturing Fuel
Forfeited Discounts
Merchandise Sales Profit
Miscellaneous Receipts

For statistical and other purposes it frequently happens that these classifications are even further sub-divided, but the principles illustrated in the above outline of revenue classifications are the basis of most of the varying forms prescribed by State Commissions and are in independent use by utilities.

Operating Expense Accounts

Operating expenses include all expenditures made by utilities for the production of commodities sold, for the rendering of service, and for the collection of an accounting for revenues derived therefrom.

Basis of Classification: For the purpose of determining definitely what charges properly belong to expense, for locating the cause of increases, and fixing and maintaining suitable standards of efficiency, operating expenses are divided into groups, which in turn are sub-divided into groups, which in turn are sub-divided into a larger number. Expenses are grouped according to the character of the operations involved, each group then being sub-divided into maintenance and operation.

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As in the case of income accounts already considered, expense classifications in common use show considerable variation in details. There is, however, an approach to uniformity in the groups of accounts which have been developed to conform to the more or less distinct divisions in utility operation.

In the Electric Department, there is first a group of generation accounts which covers production, operation and maintenance expenses, the energy conveyed to the customer's premises calling for a group of distribution accounts.

In cases like in Oklahoma where it is necessary to determine the energy at a high voltage to step it down to distribution voltage, it is necessary to have injected between the generation and distribution groups a group covering transmission accounts.

Following the distribution group of expenses, are the administrative and kindred expenses which are grouped as general expense.

Each of the above groups as far as it is concerned with the physical property is sub-divided into operation and maintenance. Each sub-group is divided into various separate accounts which represent the final expense analysis.

The purpose in all such classifications is to so divide total expense on a functional basis that no large percentage appears in any single account, unless it be one like fuel which is a large portion of the total but not divisible. By such means any material variation from normal expense is readily traced to its source and corrective measures applied if possible.

The gas expense classification corresponds very closely in a general form with that described above for the elec-

tric. It might be interesting to know that the complete classification prescribed by some commissions for large utilities include an approach to one hundred separate expense accounts.

Gross Income

If more than one kind of business is conducted by a utility the revenues and expenses of each are separately shown. The balance from all the above accounts is called "Operating Income" corresponding closely with what used to be commonly known as Net Earnings. Non-operating income, including returns from investments, leases, etc., is then shown in detail. The sum of operating income and non-operating income is called gross income in modern classification.

From gross income certain corporate obligations must first be met. They include interest of funded or floating debts, amortization of debt discount, rentals of leased property, and miscellaneous obligations.

Net Income

After deducting the above there remains a balance now styled Net Income formerly better known as Net Profits. All obligations of the corporation having previously been provided for, the disposition of this balance is subject only to the discretion of the corporation through its directors. It is usually carried annually to the surplus account.

Surplus

Appropriations from surplus usually require action of the Directors, and a statement thereof may be called an Appropriation Account. It is embodied in an annual profit and loss statement, which shows the balance at the begin-

ning of the year, additions from net income, and other sources, deduction for dividends, appropriations for depreciation, and miscellaneous adjustments and appropriations. There is finally shown the balance remaining at the end of the year.

Balance Sheet

A statement of the assets and liabilities of a corporation is known as a Balance Sheet. Its purpose is to reflect the financial condition of the corporation at the date of its compilation. A comparison of a series of balance sheets prepared at monthly or yearly intervals, shows in a general way the progress which has been made in the development of the property, and the accumulation of surplus.

While there should be no variation in the scope or purpose of balance sheets, there is a wide range of detail shown therein, depending upon the character of the business involved. The average investor does not need as much information about a property as do its officers, so that a condensed form is often used for publication.

When a utility property has just been assembled, but not yet begun to render service, its balance sheet has a very simple form. Its assets would consist principally of its plant with a moderate amount of supplies and cash in anticipation of operating requirements. Its liabilities would be made up largely of its outstanding securities. As soon as it begins its operation an earning ac-

count must be opened, which at the end of the year is closed into a surplus (or deficit) account. Accounts payable and accrual appear as liabilities with similar receivable and prepaid asset accounts. Other asset accounts which may later be required include investment securities, sinking fund investments, treasury securities, etc. Other liabilities will include notes payable, accruals for interest, taxes, customers' deposits, etc. Furthermore, the surplus account is subject to division to show separately such items as bond sinking fund, depreciation and other reserves, etc.

The balance sheet and income statement already discussed are taken from the general ledger directly or by combination of ledger accounts. The general functions of ledger and cash book do not differ from those of other businesses. Some other books of accounts kept by utilities are prepared especially for their requirements.

I regret I have not the time to go into the voucher register, work order register, stock ledgers, and other books and records of the company.

I might say in closing that among the things that require greater accounting skill and knowledge of requirements of the particular business are the examination of the general books, verification of balance sheets, and taking of trial balance, checking of classifications, of vouchers, payrolls, stock slips etc. to appropriate expense, construction or other accounts.



ADVERTISING SECTION

A. A. HIGGINS, Chairman

B. J. MULLANEY, Vice-Chairman

CHARLES W. PERSON, Secretary

MANAGING COMMITTEE—1922

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 BENNETT, J. M., Philadelphia, Pa.
 HANLAN, J. P., Newark, N. J.
 HUMM, A. W., New York City, N. Y.
 INGLE, J. P., Haverhill, Mass.
 MURPHY, W. G., Newtown, Pa.
 NEWTON, F. A., Jackson, Michigan.
 POTTER, CLYDE H., Los Angeles, Cal.
 WELSH, W. J., Stapleton, N. Y.
 WISKE, P. B., Brooklyn, N. Y.

Representing Affiliated Societies

ALLEN, GEO. W., Toronto, Can. (Canadian)
 BURNS, J. J., St. Louis, Mo. (Missouri)
 CHAPIN, C. H. B., New York, N. Y. (Empire State Gas & Electric Association)
 FRANKLIN, S. J., Millville, N. J. (New Jersey)
 FUGATE, FRANK, Detroit, Mich. (Michigan)
 GOULD, WM., Boston, Mass. (N. E. Gas Eng.)
 HARTOG, JOHN H., Portland, Ore. (Pacific Coast)
 JASPERSON, R. O., Chicago, Ill. (Wisconsin)
 LESTER, F. M., Chicago, Ill. (Illinois)
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 MULHOLLAND, S. E., Fort Wayne, Ind. (Indiana)
 ROLSTON, R. J., Philadelphia, Pa. (Pennsylvania)
 THILERT, P. A., Raleigh, N. C. (Southern)

The Newspaper Relationship

H. M. LYTLE, Associate Director, Illinois Committee Public Utility Information

IN the course of the more than three years in which I have been connected with the Illinois Committee on Public Utility Information, I have sold myself on several conclusions, both from my own experience and from watching the experiences of others.

Substantially these are:

1. That this work is a 24-hour-a-day, 365 days-a-year effort, and that thought must be put into it over those periods of each day and year.

2. That it is a poor business for a man of the so-called press agent type. That type flashes in the pan and then quickly extinguishes himself. Such work must follow a systematic, well-understood and adhered-to plan, and the man responsible for disseminating information must have his facts well founded.

3. That few in the industry know much about it except as respects the things that immediately concern them as

individuals, and do not fully appreciate the inevitable district, state or national relationships that are natural to this so-different business.

4. That within the last three years there had been more real progress in educating utility employees to some knowledge of their business than in all the previous years combined, but that the companies and the various branches of the industry, as a whole, have gone only an infant's step in that direction even as yet.

That is the scenery backgrounding the efforts of a state committee and of its directors in attempting to form proper relationship with the newspapers and other publications, and through them, with the public.

At the outset I would like to point out that but few of the utility companies have even as yet organized themselves in a publicity, advertising or public relations way. Few can point to a specific indi-

vidual in their organization and say "that is the man responsible for public relations work." Many continue to buy expensive space in advertising columns and then fill it with badly written matter which creates no good impression except upon the man who wrote it.

When there is no rising of the populace to agree with the management about some purely selfish point argued, there is a feeling that advertising is of no value, and the public unreasonable. There is a definite technique to advertising writing; it takes a skilled workman to successfully tell a story in an advertisement; it takes a knowledge of the newspaper business to know the psychological moment to use the advertisement and which papers to use in order to get results. And it takes a wide knowledge of how the public, as a mass, thinks, believes and acts in carrying on not only this, but every other public relations activity.

This is not digressing from the subject, for it points out a great fault of much matter which the local management believes to be news and which, when the editor doesn't publish it, causes a disappointment. One situation shown is that of using paid space to tell something that doesn't get across. The other is using time and energy of valuable employees, who, while versed in some things, know nothing about the newspaper business or how to maintain proper newspaper and public relations for the company. A newspaper man would be foolhardy to try to string a transmission line, but many linemen will tell you they know a lot about the newspaper business and admit they are capable news writers. And almost any executive will tell you he writes beautiful "ads."

In building the work of the Committee

and establishing its relationships with the newspapers, it has been necessary to recognize this lack of local organization within the companies. Were each utility company possessed of a good public relations man, it would be very simple to join them together into a working association, and through them tell the story. This would have the very great advantage of permitting "localization" of effort; a very important thing. The Illinois Committee has made strenuous efforts to induce particularly the larger utilities of the state to so organize themselves, and some real progress has been made.

But lacking usually local public relations agencies beyond that of the management itself, it is necessary for the Committee to build a state-wide news distributing agency. The Illinois Committee's mailing list comprises every daily and weekly newspaper, both English and foreign languages, every monthly publication, whatever may be the trade or purpose it intends, every public university and college library, every reference agency, all secretaries of commercial clubs, and in addition there is a very wide list of investment bankers, advertising agencies, and others who might disseminate such information. We have endeavored to place every utility manager or person in the state having to do with publicity, advertising, public relations, or educating of employees, on the mailing list. In other words, we not only attempt to obtain publication of our matter directly, but also put it where it may originate either as a quotation or as news matter, and in many different forms.

The Illinois Committee issues a printed sheet weekly under the heading "News Bulletin." It supplements this with

mimeograph matter sent out as occasion warrants. It prepares special stories, either upon request or at its own suggestion, for individual publications. It provides data for matter to be written by others. In case of news agencies, it gives stories exclusively to such. As respects the printed news bulletin, it is partial to that largely because it has been successful. It believes that success has been predicated upon the fact that a bulletin coming along to the editor's desk weekly in that form, while it may not create as much attention, does not look "press agency," nor as though it were something being forced upon the editor's attention. Also we have been confronted with the situation that practically all propaganda being sent out by several dozens of organizations in the state, goes out in mimeographed form.

Generally speaking, the attitude of the newspapers towards the work of the committee has been exceptionally good. At the outset it was mixed. Some regarded the effort as being a very progressive step. Others believed such matter was advertising and should be paid for. This latter question has not been raised in the last two years. The widely increased use of the bulletin matter, and the constantly increasing number of newspapers in which this matter is found, would seem to indicate that this feeling does not now exist.

There is a natural inclination to expect too much from the newspapers. The newspaper, as an institution, has hard work making itself believe it has an interest in any utility serving the community. It doesn't get "het up" about utility news unless that news is such that will interest its readers. Neither is it a mind reader as respects the facts in various

utility situations, and unless it has full possession of them it cannot be expected to be what a utility manager might term "fair." If it is, it is purely by accident.

It is no job of the state committees to conduct paid advertising campaigns. They are purely information agencies dealing with news relative to a great industry. They have nothing to sell. Believing in paid advertising as a medium which should be paid by the various companies, they urge the use of paid space and may even go to the point of advising with companies or offering suggestions relative to advertising. This latter has been done by the Illinois Committee, it volunteering its services to all companies. This offer was widely taken advantage of by the smaller utilities, particularly, and it is of interest to know that in the short time the committee has been operating, utility advertising in the state has increased at least 500 per cent. But it is no job of the committee itself to advertise. It is bound to create a bad impression and it would have a stifling effect upon the efforts the individual companies should be putting forth. Joint advertising campaigns, I believe, should be strenuously protested.

A state committee should stay strictly out of all controversies. It should also stay away from the state legislature and keep entirely out of politics. Its director should conduct its affairs so that in his relationship with the newspapers the charge will never lie that he is working in the interests of a particular company or group, as opposed to the industry as a whole.

It is further the duty of the committee, and particularly its director, to first fully know the utility story—all about it—before attempting to sell it to the news-

paper editor. It is a good policy for a director to follow never to attempt to tell a newspaper or newspaper man anything he doesn't himself believe. For instance, it is ridiculous for a director to say that service in a community is good, if everyone knows it is bad. Were he to stick to the facts and give the reasons underlying the bad service he would get much further, the utility would make friends and the public would be more sympathetic. In dealing with newspaper reporters it is well worth while remembering, both on the part of directors and utility executives, that the cub reporter of today—the youth who asks unreasonable and sometimes unintelligent questions—will be the managing editor of tomorrow and that he is formulating his impression of utilities and the industry at this time—impressions he may carry for some time.

There is one thought I would like to get to every executive responsible for the successful operation of a public utility company. I would like to have him compare the expenditures of his company for publicity, advertising and other public relations activities with that of the successful department store of his community. In making this comparison I would like to have him hold in mind that he has the entire community to keep in favorable frame of mind as respects his affairs, whereas the department store probably has only a fraction of the population as its patrons. I would like to have him ask the department store proprietor if he thinks he gets a real tangible return on the dollars he spends cultivating the public. And I would like to have the public utility executive recollect that while he may monopolize the electric, gas, telephone, or electric railway field of his community, he does not have a monopoly

upon the lighting, power, heating, communication and transportation businesses. He will be somewhat surprised to learn the extent of the hot competition and this is especially true where public relations are not good.

I would like to reiterate that when the Illinois Committee started its work it promised the newspapers, and itself, as well, that it would stay out of politics. It promised itself that it would stay away from so-called propaganda and the devious ways that any skilled publicity man will tell you about, such as putting out matter through "paper" organizations. The Illinois Committee made up its mind that the plain, straight-forward facts relative to the industry constituted a good story. It felt that if the cold facts wouldn't stand fullest publicity then something was radically wrong about the business and it was high time to find out what it was. The Committee has consistently followed this policy. It has no alibis. It stands willing to take credit or blame for anything it sponsors. Its work is all out in the open. And it has been pleased with the public reception it has had in taking such a stand.

Viewing the situation broadly there is no doubt but that very great progress has been made in Illinois in establishing a better relationship between newspapers and the utilities. With fuller information available the change in attitude on the part of the press has been marked, both in news and editorial columns. We have found that the utilities themselves, the state over, are bestirring themselves, and benefitting from the information constantly going out, are handling information relative to their purely local situations in a more intelligent and under-

(Continued on page 448)

Our New and Bigger Advertising Service

THAT the gas industry is quick to appreciate a good thing when it sees it, is evidenced by the support being given to the new merchandise and good-will copy service that the Association proposes to issue to its member companies about September 1st.

Subscriptions are now being received as a result of the recent letter describing plans and purposes of the new service, which will be issued monthly and consist of eight original, illustrated newspaper advertisements in addition to the combined good-will and chat advertising services, now a regular feature of the Association's advertising activities.

The possibilities of a syndicated service of such a comprehensive character as this are almost unlimited. Nothing like it has ever been attempted before; and the Executive Board of the Association would not have approved of the project were it not convinced that the industry is running into an era of competitive selling when every sales instrumentality must be employed and when there will be great need for the proper advertising facilities to enable companies to maintain their proper sales quotas.

On the other hand, if the Association did not believe that the proposed copy service would elevate the present advertising standards of the industry, and stimulate a larger use of newspaper space, it would not attempt to issue it. But the Association feels confident that the new service will accomplish these results and in addition will cause companies to break away from the habit of advertising spasmodically.

The cost of the service is one of its best selling arguments. For sixty dollars annually—the total cost—member companies will receive each month:

(a) Eight (8) illustrated one, two, and three-column newspaper advertisements devoted to the merchandising of all types of appliances, as well as coke, industrial fuel applications, piping houses for gas, and many other timely subjects.

(b) One (1) illustrated good-will building advertisement.

(c) Four (4) single-column "Chat" advertisements.

(d) Matrices of all illustrations to be included FREE with proofs of copy.

(e) Where matrices are not adaptable for use, electrotypes or stereotypes of the illustrations will be furnished for a nominal charge,—stereotypes will be approximately 40¢ to 50¢ for single-column size and about \$1.00 for three-column size; electrotypes will cost about 25 per cent more than stereotypes.

In other words, an entire year's service will consist of:

(1) 96 pieces of original appliance advertising copy set in one, two, and three-column sizes.

(2) 96 matrices reproducing original illustrations to accompany the above.

(3) 12 pieces of "Good Will" advertising copy.

(4) 12 matrices reproducing illustrations of the above.

(5) 48 pieces of "Chat" advertising copy.

A syndicated copy service of such proportions as this, for a total annual cost of \$60.00 payable quarterly in advance, can only be issued if we secure a large number of subscriptions, from 250 to 300, say.

The time and labor-saving features that it offers to subscribers are large. For example, there will be no need to worry about "how" or "what" to advertise. The service furnishes the nec-

A. G. A. MONTHLY

essary tools to work with and one hour's notice to the newspapers is all that is necessary to get an up-to-the-minute, illustrated, appliance-selling or good-will advertisement published.

Every piece of copy and every illustration will be examined and passed upon by the Association before it is mailed. Unless a drawing or piece of copy can stand the test of good merchandising practice it will not be included in the service.

With a variety of advertisements to choose from each month, no company, however large or small, will find any difficulty in making the service fit local requirements. Those companies equipped with advertising departments will find the service of great value in offering suggestions around which other advertisements can be built. Ideas from sub-

scribers and the latest advertising literature issued by manufacturer company members of the Association will be welcomed in order that both copy and illustrations may be brought strictly up-to-date and in keeping with the standards that we wish to maintain.

September 1st is the date upon which we should like to launch the new plan. A letter describing its high points has been mailed to member companies. A copy will be sent upon request to any gas man who is interested.

The Association will make no profit on the transaction. At this time it is merely asking its member companies to sign a blank form promising support. If you have not signed this form, you will find it to your advantage to do so promptly.



State Committees on Public Utility Information

(National Status as of June 15, 1922)

Illinois, H. M. Lytle, Room 829, 72 West Adams Street, Chicago, Illinois.
Indiana, John C. Melett, Hume-Mansur Building, Indianapolis, Indiana.
Kentucky, L. B. Herrington, Kentucky Utilities Co., Louisville, Kentucky.
Michigan, Alfred Fischer, P. O. Box 394, Ann Arbor, Michigan.
Missouri, J. B. Sheridan, 3725 N. Broadway, St. Louis, Missouri.
Nebraska, Horace M. Davis, 527 Bankers Life Building, Lincoln, Nebraska.
Ohio, Benjamin E. Ling, 901 Illuminating Building, Cleveland, Ohio.
Oklahoma, O. D. Hall, Room 1107, 1st Nat'l Bank Bldg., Oklahoma City, Okla.
Wisconsin, Frantz Herwig, 91 Mason Street, Milwaukee, Wisconsin.
Georgia, Paul Warwick, 500 National City Building, Atlanta, Georgia.
New England, Joseph B. Groce, 24 Milk Street, Boston, Massachusetts.
Rocky Mountain, Geo. E. Lewis, 302 Gas & Electric Building, Denver, Colorado.
Iowa, Joe Carmichael, 310 Crocker Building, Des Moines, Iowa.
Washington, N. W. Brockett, 203 Electric Building, Seattle, Washington.
Texas, Geo. McQuaid, Magnolia Building, Dallas, Texas.
New York, Frederick W. Crone, Room 3052, Grand Central Terminal, New York.

MANUFACTURERS SECTION

JOHN S. DeHART, Jr., Chairman

F. A. LEMKE, Vice-Chairman

C. W. BERGHORN, Jr., Secretary

MANAGING COMMITTEE—1922

At Large

BRILL, A. P., Pittsburgh, Pa.
CLOW, K. S., Chicago, Ill.
COLLINS, D. J., Philadelphia, Pa.
CRANE, WM. M., New York, N. Y.
DeHART, JR., JOHN S., Newark, N. J.
DICKET, C. H., New York, N. Y.
FERRIS, E. J., New York, N. Y.
GREENE, J. J., New York, N. Y.
GRIBBEL, W. GRIFFIN, Philadelphia, Pa.
KRAFF, F. H., Pittsburgh, Pa.
KOPFER, WM. B., Brooklyn, N. Y.
LEMER, F. A., Kalamazoo, Mich.
McDONALD, DONALD, New York, N. Y.
ROFER, GEORGE D., Rockford, Ill.
SHERWOOD, J. M., New York, N. Y.
STITES, TOWNSEND, Gloucester, N. J.

Affiliated Representatives

GIBSON, W. R., Toronto, Can. (Canadian)
MILLER, THOMAS D., Detroit, Mich. (Illinois)
WESTON, J. A., Lansing, Mich. (Indiana)
ROFER, GEORGE D., Rockford, Ill. (Iowa Dist.)
SCHALL, H. D., Detroit, Mich. (Michigan)
KELSEY, L. D., Brookfield, Mo. (Missouri)
NORTON, ARTHUR E., Boston, Mass. (N. E. Gas Eng.)
BARTLETT, C. E. (New Jersey)
EGLESTON, G. P., San Francisco, Calif. (Pacific Coast)
BARTLETT, C. E., Philadelphia, Pa. (Pennsylvania)
SEIDENGLAW, C. H., Dallas, Tex. (So. Central)
SPARKS, F. F., Chattanooga, Tenn. (Southern)
McCULLOUGH, CHARLES, Milwaukee, Wisc. (Wisconsin)

CHAIRMEN OF SECTION COMMITTEES ORGANIZED TO DATE

Exhibition—JOHN S. DeHART, JR., Newark, N. J.
Nominating—GEORGE D. ROFER, Rockford, Ill.
Division of Accessories Manufacturers—J. M. SHERWOOD, New York, N. Y.
Division of Apparatus and Works Manufacturers—D. J. COLLINS, Philadelphia, Pa.
Division of Gas Range Manufacturers—WM. M. CRANE, New York, N. Y.
Division of Heating Appliance Manufacturers—K. S. CLOW, Chicago, Ill.
Division of Industrial Appliance Manufacturers—WM. B. KOPFER, Brooklyn, N. Y.

Division of Lighting Appliance Manufacturers—TOWNSEND STITES, Gloucester, N. J.
Division of Meter Manufacturers—DONALD McDONALD, New York, N. Y.
Division of Office Labor Saving Devices Manufacturers—E. J. FERRIS, New York, N. Y.
Division of Water Heater Manufacturers—A. P. BRILL, Pittsburgh, Pa.
Division of Supply Manufacturers—J. J. GREENE, New York, N. Y.

**The Fourth Annual Convention
And Exhibition
of the
American Gas Association, Inc.
at
Atlantic City, New Jersey
October 23rd to 27th inclusive, 1922**



The Fourth Annual Convention and Exhibition

Mr. Manufacturer:

What would you do—

If you were offered the best exhibit space in the world at a bargain price?

If you were sure that thousands of persons from all over the land would daily pass by this space?

If you knew that in addition there would be 1500 specialists of your industry assembled there and that their attention would be concentrated for a week on this exhibit space?

If you had the opportunity of selling this public and the nation-wide industry at one and the same time with minimum effort and maximum effect?

You Would—

Make every effort to be present, reserving your space without delay, realizing that the opportunity to take advantage of such a combination of circumstances rarely presents itself.

That is what the exhibition on the Steel Pier at Atlantic City the week of October 23rd to 27th offers you. Atlantic City, the playground of the world—the Steel Pier as though designed for such an exhibit—the Annual Convention of the Association attended by 1500 of the ablest men in the industry—all there in one.

Mr. Manufacturer, this is the time to sell your organization and your organization's products, not only to a national industry, but to a discriminating public as well.

A. G. A. MONTHLY

The Exhibition

Will afford manufacturers supplying the needs of the gas industry the opportunity to exhibit and demonstrate their products.

Estimated attendance of gas men—1500

Boost Business

The buying power of the Gas Industry will be there—this is the big opportunity of the year to show your goods.

Three Distinct Divisions

Gas appliances of every variety
Works, Apparatus, Machinery and Accessories
Office Labor Saving Devices

Under the Management of

Manufacturers' Section

American Gas Association, Inc.
130 East Fifteenth St.
New York, N. Y.

Exhibition Committee

JOHN S. DEHART, JR., *Chairman*
GEORGE S. BARROWS
A. P. BRILL
F. A. LEMKE
CHARLES W. WARDELL
C. W. BERGHORN, JR., *Secretary*

American Gas Association, Inc.

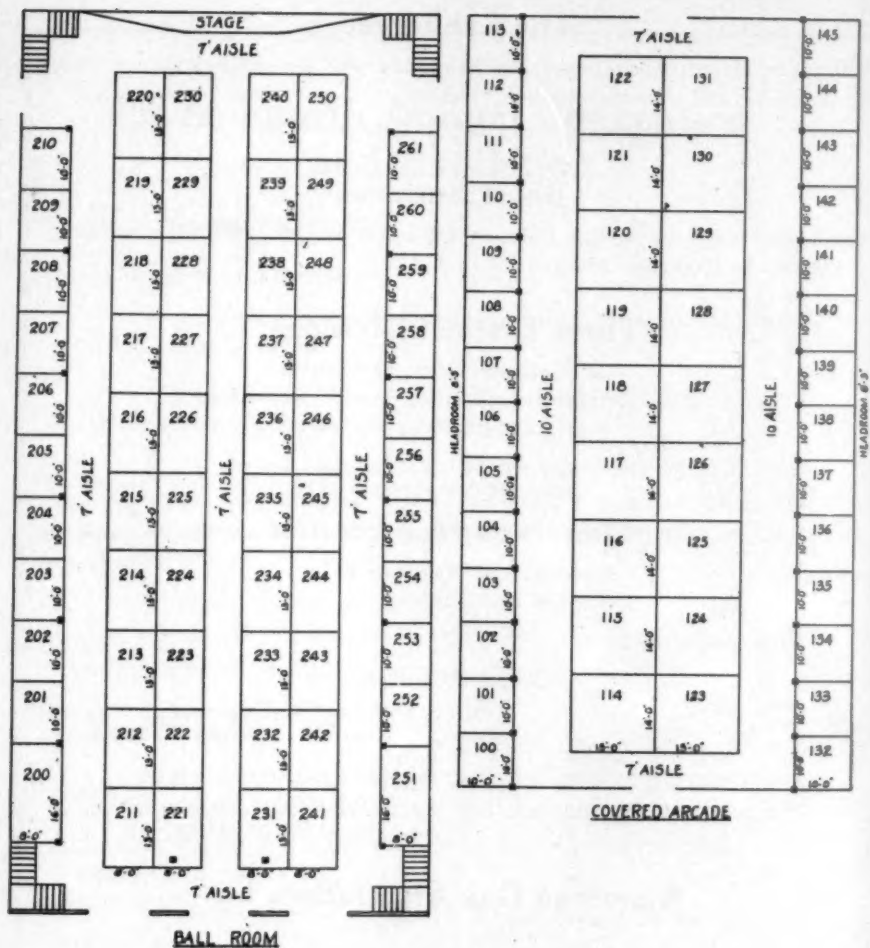
Manufacturers' Section
1922 Exhibition Space
Concert Hall, Covered Arcade and Ballroom
Steel Pier, Atlantic City, N. J.
October 23rd to 27th inclusive, 1922

Gas will be available in Booths Nos. 1 to 48 inclusive, in the Concert Hall.

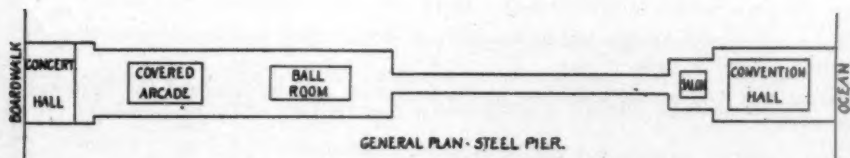
Gas, water, and drainage will be available in Booths Nos. 100 to 145 inclusive, in the Covered Arcade.

Booths Nos. 200 to 261 inclusive, in the Ballroom, will be reserved for dead exhibits.

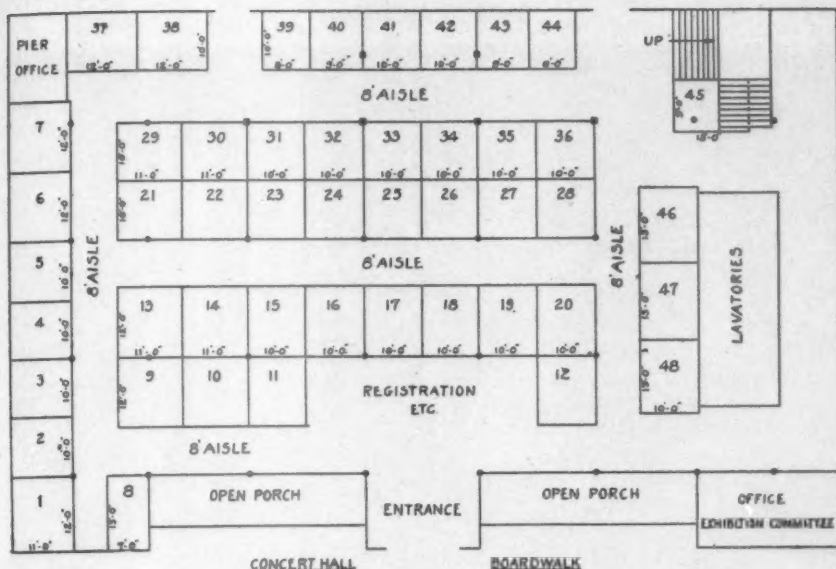
Electric current (110 A. C.) will be available in all rooms.



GENERAL PLAN - STEEL PIER.



A. G. A. MONTHLY



COST OF SPACE

Location	Booth Nos.	Dimensions	Area	Cost
Concert Hall	39, 44	8' x 10'	80	\$120.00
	40, 43	9' x 10'	90	135.00
	8	7' x 13'	91	136.50
	23 to 28 incl.	10' x 10'	100	150.00
	31 to 36 incl.			
	41, 42			
	2, 3, 4, 5, 21, 22	10' x 11'	110	165.00
	29, 30			
	45	9' x 13'	117	175.50
	11, 12	10' x 12'	120	180.00
	15 to 20 incl.			
	37, 38			
	46, 47, 48	10' x 13'	130	195.00
	1, 6, 7, 9, 10	11' x 12'	132	198.00
	13, 14			
Covered Arcade	100 to 113 incl.	10' x 10'	100	150.00
	132 to 145 incl.			
	114 to 131 incl.	14' x 15'	210	315.00
Ballroom	201 to 210 incl.	8' x 10'	80	100.00
	252 to 261 incl.			
	211 to 250 incl.	8' x 13'	104	130.00
	200, 251	8' x 16'	128	150.00

1921 Exhibition



RULES AND REGULATIONS

Covering the Fourth Annual Exhibition of the
AMERICAN GAS ASSOCIATION, Inc.

October 23rd to 27th, inclusive, 1922

- I. **Management of Exhibition**
The Exhibition is under the management of the Manufacturers' Section of the American Gas Association.
- II. **Application for Space**
Only Company members may exhibit.
Exhibitors must file a written application for space with the Secretary of the Exhibition Committee and all applications are subject to the approval of the Exhibition Committee.
- III. **Space Rental**
A payment of \$25.00 must accompany each application for space, the balance to be paid within thirty days of the date of notification of allotment of space. Any exhibitor who shall fail to make the final payment within thirty days from the date of the allotment shall at the option of the Exhibition Committee forfeit his rights in and to the use of such space, as well as the amount already paid, if any, and the Exhibition Committee shall have the option to dispose of such space as it considers for the best interests of the Exhibition.

A. G. A. MONTHLY

The rental price includes booth railing, one table, three chairs and sign designating the name of the exhibitor. No other decoration or signs will be permitted except as requested and in such cases subject to approval of the Exhibition Committee and at the expense of the exhibitor.

IV. Allotment of Space

Space will be allotted by the Exhibition Committee in the order in which applications are received. The number, size and location of booth will be indicated on the notice of allotment.

V. Subletting of Space

No exhibitor shall assign, sublet or apportion the whole or any part of his allotted space.

VI. Shipment of Exhibits

Exhibits shipped via freight must be crated and shipped, transportation charges prepaid, to Exhibitor, c/o Eldredge Express & Storage Warehouse Co., Atlantic City, N. J., and must be marked "For Exhibit—Booth No.:.....," filling in the booth number allotted.

Exhibits shipped via express must be shipped transportation charges prepaid addressed to Exhibitor, Steel Pier, Atlantic City, N. J., and must be marked "For Exhibit—Booth No.," filling in booth number allotted. Advice of shipment must be accompanied by a duplicate B/L and sent to American Gas Association, Steel Pier, Atlantic City, N. J.

All exhibits must reach Atlantic City not later than October 19th.

All cartage will be charged to the exhibitor.

VII. Installation of Exhibits

All exhibits must conform to the size of their space.

On arrival of exhibits in Atlantic City, the Exhibition Committee will take charge of same, unpack and place in booths.

Permission will be granted for the use of pipe structure to display gas lights and fixtures. These structures must be painted white, rest on the floor of the booth without screws or nails, must be supplied by the exhibitor completely ready for gas connection and must be within the measurements of the booth.

Exhibits will be arranged during the week of October 16th to October 21st and exhibitors must have a representative on the floor of the Exhibition Halls during some part of that time to supervise the arrangement and connecting up of their exhibits.

All exhibits must be complete and in place by midnight, Saturday, October 21st. No work of any nature will be permitted on the Exhibition floor after that time.

VIII. Souvenirs and Advertising Matter

The Executive Board of the American Gas Association has ruled that souvenirs are not to be given away by exhibitors at the 1922 Convention and Exhibition.

All advertising matter with the exception of catalogues must be approved by the Exhibition Committee before being distributed.

IX. Hours of Exhibition

The Exhibition will be formally opened on Monday, October 23 at 10 A. M.

X. Removal of Exhibits

All exhibits must remain in place and intact until 4 P. M. Friday, October 27th, when the Committee will recrate and ship them in accordance with instructions furnished by exhibitors.

To facilitate this work all crates must be made of strong and durable material and must be screwed together and have shipper's name marked thereon to insure their identification.

Associations Affiliated with A. G. A.

Canadian Gas Association

Date of Affiliation—Mar. 25, 1919
 Pres.—C. S. Bagg, Montreal Light, Heat & Power Co., Montreal, Que.
 Sec.-Tr.—G. W. Allen, Consumers' Gas Co., Toronto.
 Conv., Hamilton, Ontario, Aug. 24-25, 1922.

Empire State Gas and Electric Association

Date of Affiliation—Nov. 21 1919
 Pres.—E. H. Rosenquest, Bronx Gas & Electric Co., Bronx, N. Y.
 Sec.—C. H. B. Chapin, Grand Central Terminal, New York, N. Y.
 Conv., Lake Placid, N. Y., Oct: 5-6, 1922.

Illinois Gas Association

Date of Affiliation—Mar. 19, 1919
 Pres.—R. S. Wallace, Central Illinois Light Co., Peoria, Ill.
 Sec.-Tr.—R. V. Frather, 305 Illinois Mine Workers Bldg., Springfield, Ill.
 Conv., 1923.

Indiana Gas Association

Date of Affiliation—April 24, 1919
 Pres.—F. B. Tracy, Central Indiana Gas Co., Muncie, Ind.
 Sec.-Tr.—E. J. Burke, Citizens Gas Co., Indianapolis, Ind.
 Conv., 1923.

Iowa District Gas Association

Date of Affiliation—May 21, 1919
 Pres.—H. B. Maynard, Citizens Gas & Electric Co., Waterloo, Ia.
 Sec.-Tr.—H. R. Sterrett, Des Moines Gas Co., Des Moines, Ia.
 Conv., 1923.

Michigan Gas Association

Date of Affiliation—Sept. 18, 1919
 Pres.—J. A. Brown, Hodenpyl, Hardy & Co., Jackson, Mich.
 Sec.-Tr.—A. G. Schroeder, Grand Rapids Gas Light Co., Grand Rapids, Mich.
 Conv., Detroit, Mich., September, 1922.

Missouri Association of Public Utilities

Date of Affiliation—June 18, 1920
 Pres.—H. Spehrer, Union Elec. Lt. & Pr. Co., St. Louis, Mo.
 Sec.-Tr.—F. D. Beardslee, 315 N. 12th St., St. Louis, Mo.
 Wiley F. Corl, Chmn. Affiliation Com., Missouri Utilities Co., Mexico, Mo.
 Conv., 1923.

New England Association of Gas Engineers

Date of Affiliation—Feb. 19, 1919
 Pres.—V. E. Bird, Connecticut Power Co., New London, Conn.
 Sec.-Tr.—J. L. Tudbury, Salem Gas Light Co., Salem, Mass.
 Conv., 1923.

Gas Sales Association of New England

Date of Affiliation—Oct. 1, 1919
 Gov.—F. A. Woodhead, Arlington Gas Light Co., Arlington, Mass.
 Sec.—M. Bernard Webber, 150 Congress St., Boston, Mass.
 Annual Meeting, 1923.

New Jersey Gas Association

Date of Affiliation—April 25, 1919
 Pres.—Jacob B. Jones, Bridgeton Gas Light Co., Bridgeton, N. J.
 Sec.-Tr.—H. E. Mason, Consolidated Gas Co. of N. J. Long Branch, N. J.
 Conv., 1923.

Pacific Coast Gas Association

Date of Affiliation—Sept. 18, 1919
 Pres.—Henry Bostwick, Pacific Gas & Electric Co., San Francisco, Cal.
 Sec.-Tr.—W. M. Henderson, 812 Howard St., San Francisco, Cal.
 Conv., Santa Barbara, Cal., September, 19-22, 1922.

Pennsylvania Gas Association

Date of Affiliation—April 10, 1919
 Pres.—Luther Gaston, Lebanon Gas & Fuel Co., Lebanon, Pa.
 Sec.-Tr.—Geo. L. Cullen, Harrisburg Gas Co., Harrisburg, Pa.
 Conv., 1923.

South Central Gas Association

Date of Affiliation—Oct. 15, 1919
 Pres.—Frank L. Weisser, San Antonio Public Service Co., San Antonio, Texas.
 Sec.-Tr.—S. J. Ballinger, San Antonio Public Service Co., San Antonio, Texas.
 Conv., Hot Springs, Ark., Oct. 10-11-12, 1922.

Southern Gas Association

Date of Affiliation—May 20, 1919
 Pres.—F. H. Gadsden, The United Gas Improvement Co., Philadelphia, Pa.
 Sec.-Tr.—G. H. Smith, City Gas Co., Norfolk, Va.
 Conv., 1923.

Wisconsin Utilities Association

Pres.—J. P. Pulliam, Wisconsin Public Service Co., Milwaukee, Wis.
 Exec.-Sec. J. N. Cadby, 445 Washington Bldg., Madison, Wis.
 Conv., 1923.

COMMERCIAL SECTION

A. P. POST, Chairman

LOUIS STOTZ, Secretary

WILLIAM GOULD, Vice-Chairman

MANAGING COMMITTEE—1922

At Large

BEAL, A. R., Poughkeepsie, N. Y.
CAULEY, F. F., Chicago, Ill.
CLARK, J. C. D., Boston, Mass.
CRANE, WM. M., New York, N. Y.
DAVIES, J. E., Chicago, Ill.
GOULD, WM., Boston, Mass.
KARSHNER, G. M., New York, N. Y.
LONG, H. J., New Brunswick, N. J.
MACSWENEY, J. P., Rochester, N. Y.
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CHAIRMEN OF SECTION COMMITTEES ORGANIZED TO DATE

Contributions to Monthly—Representatives, Affiliated Societies
Cooperation with Architects and Plumbers—G. M. KARSHNER, New York, N. Y.
Industrial Sales—F. F. CAULEY, Chicago, Ill.
Sales Stimulation—WM. GOULD, Boston, Mass.

Educational Pamphlets (Sub.)—J. P. HANLAN, Newark, N. J.
Merchandise Advertising (Sub.)—J. E. DAVIES, Chicago, Ill.
Program—WM. GOULD, Boston, Mass.

Quality Merchandise

From address by Oscar H. Fogg before the Gas Sales Association of New England. (EDITOR'S NOTE.)

IN general, the success of any merchandising effort is judged by the sales profits made and the turnover of stock. The ordinary department store can be taken as an example of sales effort based on these two factors. On this basis, even they have no trouble in making the sale of gas appliances a profitable business and unfortunately some gas companies have followed their lead. I say unfortunately because there must be a different major consideration underlying any merchandising effort on our part. Sales profits or stock turnover should not form the foundation in our case. Basically underlying our whole merchandising fabric is the object of in-

creasing the sale of gas. Our primary purpose in any sales effort must be the extension and development of our business through the sale of appliances purely on their value as utilizers of gas. There can be no doubt about that. Therefore, unlike the department store, we are selling for the future; more than the immediate sale is at stake. This means that the appliances sold must initially conform to the highest standards of gas utilization and, furthermore, must go on performing efficiently for an indefinite period and rendering useful service long after the sales transaction has been forgotten. Our sales effort might well be said to depend on the one oft-used word

—Service. If they fail in this respect, then it is our loss and our merchandising effort cannot be considered successful.

This axiom brings us squarely up against what I shall call Quality Merchandise. And here I may say we have our failings. We have not yet fully overcome the tendency to follow the line of least resistance—the very human trait of taking the easiest way. No one will deny that it is easier to sell the lower priced of two articles when both, to all appearances, and especially to the purchaser, are very much like. But no one can sustain the claim that it is good business for us from any point of view to permit the sacrifice of quality in order to provide the inducement of low price, and easy sale. To cheapen the construction of a gas range to the extent of impairment of its durability, its safety or performance is stepping back into the rut of former years and no man here tonight would give his sanction to such a thing. Yet this very thing is being done, gentlemen, and, strange to say, the cases which have been brought to our attention indicate that it was not the manufacturer who was ready to take quality out of his product, but it was his gas company customer to whom the path of least resistance appealed as the most attractive. It was the gas company customer who had lost sight of the fact that he was selling for the future.

We can all realize the grave menace in such a trend as this, and we can be thankful that it is not more general. But so dangerous is it that we owe it to the safety of our business to see that it is checked and checked effectually at its very incipience. The modern merchandiser in the gas business today has not even the need of such a questionable excuse to sell ap-

pliances. In a land of twelve million automobiles—where the phonograph is a household possession of the poor and rich alike—and the great mass of people buy intelligently—he finds not only that quality counts but that the buying public is willing to pay for quality at its fair price in preference to shoddy at its price. They have been educated and have learned through bitter experience the false economy of the shoddy product.

Not only has the gas merchandiser no excuse, but there has been placed in his hands the insurance policy for quality product, the Standard Gas Appliance Specifications. These were devised for the protection of the gas industry and in the interest of the users of gas appliances. They were the joint work of appliance manufacturers and gas company men. They are eminently fair—sufficiently flexible—are up-to-date because they are revised annually—and they insure quality goods!

I am glad to say that many of our progressive companies refuse to handle appliances that do not come up to the Standard Specifications and some find it advantageous to advertise that fact to their public, as in this case which came to my notice a few days ago:

"IS YOUR KITCHEN ALL-GAS?"

"In these days of labor-saving, comfort-promoting devices, no woman should be without the convenience of a Gas Range, Gas Water Heater and Gas Iron.

"When all the kitchen work is done by means of gas heat, you can be sure of greater convenience, cleanliness and economy.

"We now have on display new Gas Ranges, with many attractive features. Some are finished in enamel. All are built according to the American Gas As-

sociation Specifications, insuring good material and workmanship and perfect cooking results.

"Call or ask us to send a representative.

THE UNITED GAS IMPROVEMENT COMPANY."

I have also had evidence that such a course is eminently successful. Another company through advertising, acquainted its customers that it sold only ranges built up to specification and not down to a price. And this in the face of strong competition of skinned ranges. And they came out ahead.

It is time that the intelligent gas man took a firm stand in this matter—an unqualified stand in favor of quality goods. I hope we will find you all solidly supporting the standard specifications and withstanding any effort that may be made to cheapen the construction of gas appliances at the expense of essential quality. Let us keep the goods that go to our public and that use our commodity on a par with or better than those of our competing friends.

Now I have said that the public of today has been educated to buy quality goods. That is true. It has been properly said that commercial values are not fixed by theoretical arguments but that they are fixed by trading in the market place. Values represent a consensus of opinion. That is where this education has come in—in forming this consensus of opinion. Therefore, it should be our task to make our public believe that gas service is essential to their comfort and happiness, and we should build up a consensus of opinion that gas appliances for every practicable reasonable purpose are necessary to the convenience and comfort of modern life. We should go even further than that. We should build up

the consensus of opinion that gas appliances, while being such a necessity, are quality appliances.

Much has been done along those lines but I believe the question may properly be asked, that if, in this effort, we have not been just a trifle too practical and too prosaic. In other words, have we not slighted the quality element, or have we not omitted certain phases of quality which I believe are the most appealing in such an effort. Take for example those arguments which we will offer in behalf of a well built gas range, a good water heater, or an efficient industrial appliance. They usually rest their popular appeal upon the claim of economy and certain obvious and well-known advantages over solid fuel-using equipment. Can we not go further in developing this "value" by popular opinion? Can we not go further by bringing out the more appealing side, emphasizing the things that reduce labor, that make care and attention unnecessary, that add to the attractiveness and appearance of the appliance, that give it "class" and make it a desirable acquisition from that standpoint alone? Convenience, time saving, labor saving, beauty! Why should the gas man stammer over the word "beautiful" in speaking of the modern gas range when there are ranges that well deserve the term? Yet he does. The housewife will use it freely when she shows the range to a neighbor. Hers is the pride of ownership. But many a gas man finds some hesitancy in using such a glowing adjective though it be the literal truth and though his should be the pride not only of ownership, but perhaps in a measure, of conception. And, in addition, he has justification of the strongest sort. Put a modern gas range in the average kitch-

en and the tone of that room is elevated; put a storage type automatic water heater in the average cellar and the first step has been taken to make that cellar a real habitable part of the house; and when the first modern industrial appliance goes into the average shop it is an object lesson in what a different place a shop can be.

Possibly it is because we know these advantages so well that we take them for granted, but it is to just such points as these that we find the electrical industry constantly directing attention in their effort to increase the popularity of electrical appliances—to form that consensus of opinion. Let us be more prompt to add these advantages to those that are usually given when the merits of modern gas appliances are described. In short, let us put the appeal more on the popular side. We have many such talking points but too few have been used. See what the push button lighting and thermostatic control did for our ranges—boosted forward in leaps and bounds even the best of our ranges. Why? Because we talked about them. They were additions that came in the convenience class and we told the public so. And that is exactly what we need—more improvements of that character to exert their strong popular appeal and then telling the public about them. It is no longer enough that our appliances will satisfactorily do given work economically and efficiently; they must be made to do it with the greatest convenience, and the least amount of care and attention, and they must have the virtue of attractive appearance as well.

Primarily it is up to the gas men them-

selves to encourage development along these lines, and that encouragement must take the practical form of readiness to pay for quality and value. I find this view reflected in a recent article by Mr. John H. Hartog, of the Portland (Oregon) Gas and Coke Company, who expresses his opinion in words that I think will bear repetition:

"The principal thing for a gas company to impress upon the public is that they sell only the best. Don't ever sell an appliance just to cater to a depraved taste for cheap trash. Let the other man do that if he wants to. But the gas company should be like Caesar's wife. It will take time to educate a hundred million people that the gas company cannot afford to sell inferior appliances.

"To us the reasons are patent, but the problem is a difficult one. Only by convincing the sales people of this fact and by continually instilling it into the public mind can one gain that prestige. But once gained it is worth all it cost to secure.

"Just think a moment. If you want a silk hat, a real swell tie, a pair of full dress shoes, a tip-top meal or a good auto, where do you go? Do you visit some second-hand shop to see how cheap you can get it? Do you patronize a place you never heard of? No, you make a bee line for the place where you *know* you are going to get the best. The same standard can be established for gas appliances and the public made to feel that if they really want a reliable article they are always safe at the gas company. It will help your sales, increase your turnover and profit and reduce your tribulations."





**The Gas Fired Steam Boiler
now plays an important part
in factory operations.**

Above picture shows five 10 Horse Power Gas Boilers used in furnishing steam for sponging and shrinking cloth on Hebdon Machines and in large Dry Room.

Average Monthly Gas Consumption, 420,000 cu. ft.

Detailed information on file at A. G. A. Headquarters.



GAS—the Ideal Fuel for the Crockery Industry.

China firing is done in nearly every town and city throughout the country. Kilns are usually operated with atmospheric burners; therefore GAS offers conveniences in firing; easy to control temperatures, and on the whole has many advantages over other fuels.

Kilns of the above size have firing space of 2' x 4' x 4', and have a gas consumption of 800 cu. ft. per hour of 600 B. T. U. gas.

Two firings per day of 2½ hours each, or 4000 cu. ft. per day; figuring 25 days, gives us a gas consumption of 100,000 cu. ft. per kiln per month.

Detailed information on file at A. G. A. Headquarters.



Gas for Special China Kilns

China kilns, specially built, handling the finest of work are ideal gas prospects.

The kilns shown vary in firing space from 2' x 3' x 3' 4" to 3' 6" x 6' x 3' 6", can handle a total of 400 dozen pieces assorted crockery per firing and they have a gas consumption of 6720 cu. ft. of 600 B. t. u. gas per day.

Isn't a monthly gas consumption of 168,000 cu. ft. of gas worth taking on?

Detailed information on file at A. G. A. Headquarters.



China Firing by Gas on Large Scale

Gas is the ideal fuel for firing large kilns as shown above.

This one has a firing space that can take 450 dozen pieces assorted crockery and has a gas consumption of 1950 cu. ft. per hour of 600 B. t. u. gas.

13,700 cu. ft. of gas per day; figuring 25 days per month gives us a monthly gas consumption of 342,500 cu. ft.

Detailed information on file at A. G. A. Headquarters.

Prepare Now for Early Fall Business

Suggestions from the Sales Stimulation Committee

- First:** Continue water heater campaign by making special low terms on water heaters insofar as the initial and monthly payments are concerned.
On a \$30.00 water heater, for instance, \$1.00 down and balance \$2.50 to \$3.00 monthly.
On automatic storage water heaters, \$5.00 or \$10.00 down, monthly payments \$15.00.
Gas Ranges, small initial payment ranging from \$1.00 to \$5.00, balance in monthly payments of from \$2.00 to \$10.00.
- Second:** Trade-in Offer.
Allow so much on the purchase of a new cabinet range for the old type range, if gas, oil or coal.
Allow a small amount on a hot plate and portable oven on the purchase of a cabinet range.
- Third:** Start the drive for gas lighting by offering to put in gas semi-indirect fixtures now, first payment with September gas bill.
- Fourth:** Start the drive on fire-place heating by offering to put in a fireplace heater now, first payment with September gas bill.
- Fifth:** Special Drive on Gas Heated Irons.
House to house selling by special crew of men or women, high school or college students, demonstrating the iron at customers' home and sell same at initial payment of 75c down and \$1.00 per month. These payments are used as an illustration, as some companies may want to get a dollar down and a dollar a month for six months or a dollar down and a dollar a month for five months.

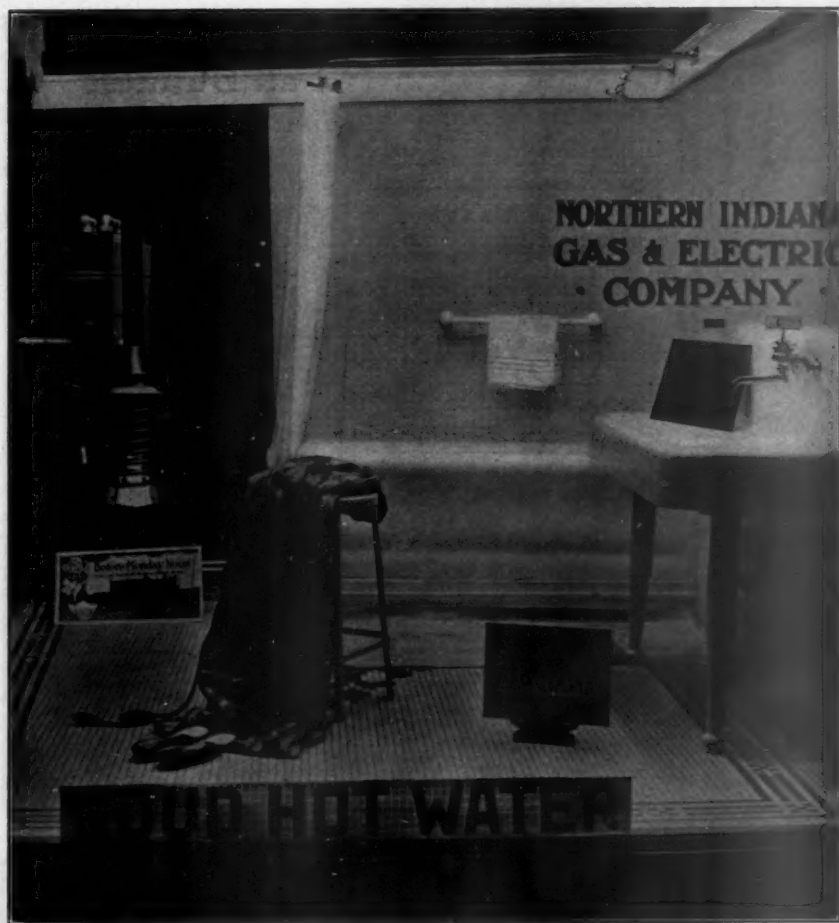
It is none too early to start lighting and heating activities during July and August because by starting two months in advance with gas lighting and heating we gain that much time in the fall and much publicity, etc.

It is understood, of course, that suitable advertising matter, window and interior displays will be prepared and used. Also that sales force will be thoroughly posted on these special sales efforts.

Canadian Gas Association Convention

The 15th Annual Convention of the Canadian Gas Association will be held in Hamilton, Ontario, Thursday and Friday, August 24 and 25.

A most interesting and instructive program has been laid out.



How Hammond Was Shown the Meaning of "Gas Hot" Water

Co-operation made this window possible. The Northern Indiana Gas and Electric Company of Hammond, Indiana, in planning to stage a special Automatic Storage System Campaign, built a bathroom in the window along with a Storage System in actual operation. The co-operation of a leading plumber was solicited and was readily obtained. With the fixtures loaned, the sales department completed the window down to the sponge, soap, bathrobe, and slippers. On the night preceding the display the local newspaper carried a front page story to the effect that his mammy would give young Sambo several baths in the window on the following evening. Young Sambo had four baths in all, at half hour intervals. During the demonstrations salesmen explained the merits of the Automatic Storage System. Now all the town is talking about automatic hot water.

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Use of Mixture of Bituminous Coal and Coke as Gen-
erator Fuel in a Water Gas Set—C. W. BRADLEY,
Chicago, Ill.

The Gum and Rosin-Forming Constituents in Artificial Gas

RALPH L. BROWN, Organic Chemist, U. S. Bureau of Mines,* Chairman Gas Pipe and
Meter Deposits Committee, American Gas Association.

THERE is being experienced by cer-
tain gas companies of the country
more or less difficulty with the deposi-
tion of gummy or resinous material in
the consumers' meters, and in certain
cases, house service pipes. The results
of this deposition are, in addition to the
inconvenience and annoyance to both
producer and consumer due to stoppages,
increased expense, and labor in meter
repair.

In the following paragraphs there are
given briefly and in part, the prelimi-

nary findings in two phases of an inves-
tigation being made by the U. S. Bureau
of Mines of this deposition. Advantage
has been taken of cooperative aid by the
United Gas Improvement Company of
Philadelphia and the Committee on De-
posits in Gas Pipes and Meters of the
Technical Section, American Gas Asso-
ciation.

In the study of the nature and forma-
tion of these deposits, it was recognized
at the outset that the basis of the depos-
its was to be found in the unsaturated

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hydrocarbons occurring in the gas. In the course of the determination of those unsaturated hydrocarbons capable of forming such gummy or resinous deposits, it was found that in the several samples of gas condensates examined, considerable, perhaps serious, quantities of indene were present. Its identity has been definitely established. (It is an interesting though incidental fact that the resin producible from the indene content of a typical sample would approximate in value twice the value of the entire sample.) *Should* it prove to be that indene is the sole source or basis of the deposits, it would follow that a solution of the gum trouble is to be found in operating in the generating system of the plant so as not to produce the indene. Another would be to operate so as to remove it before the gas bearing it enters the consumers' lines. The mechanism of gum and resin formation from unsaturated hydrocarbons need not be considered in this brief report.

The fact that the deposition of gum or resin has developed into a serious difficulty within the last several years brings into the problem many possible factors. Inasmuch as the basis of the material deposited (which for the sake of brevity will be called gum) is unquestionably the unsaturated hydrocarbons occurring in the gas, a general analysis of the problem indicates that one or both of two factors are operating to produce the gum. These are:

(1) More polymerizable or gum-forming material is being passed into distribution lines and into consumers' meters, either by reason of its greater production or a less complete removal of that material.

(2) More factors are functioning to cause polymerization and gum formation in the distributing systems. These are large in possible number and may be either physical or chemical in nature. Since production of the gum-forming constituents of a gas must occur in the complex generating equipment of a city gas system, a study of the formation of gum in distribution systems necessarily leads an investigator into a study of the chemical nature and of the production of gum-forming constituents to be found in the gas. In their production, it is inevitable that the materials employed in gas making and the operation in the generating systems must be considered. Physical equipment must also be considered.

A preliminary and limited survey of meter conditions, gas making materials, and generating system operation indicated:

(1) That a relationship exists between the character of the gas oil employed and the occurrence of gum deposition.

(2) That operation in the generating system has a decided influence on the amount of gum deposition. The gum-forming constituents of gas come chiefly from the oils cracked in the carburetting units.

(3) That the condensation and purification effected before the gas is delivered to the consumer's meter has an influence on the gum deposition.

(4) That conditions local to a meter have a secondary influence on gum formation and deposition.

(5) That corrosion in meters is a complicating factor but in itself not a necessary one in gum formation and deposition.

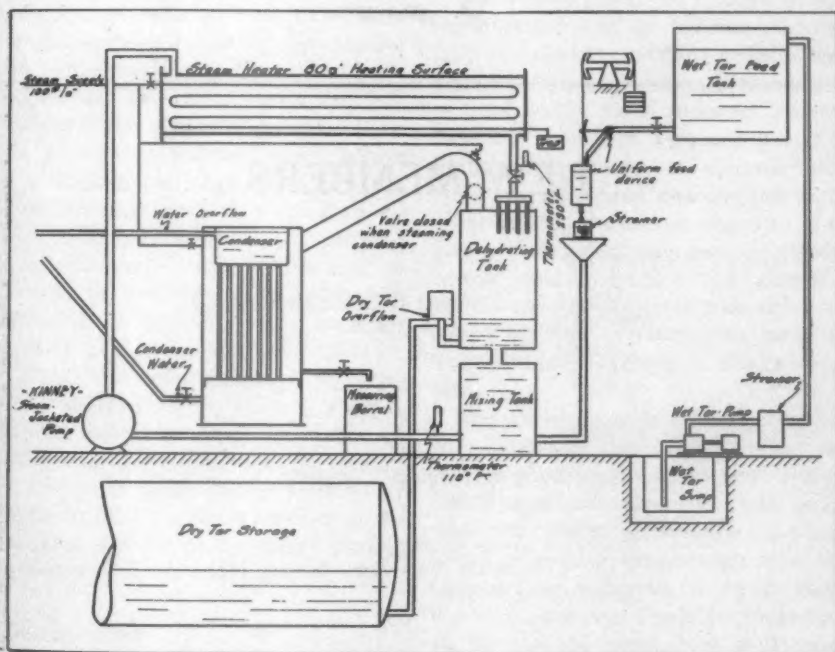
A New Tar Dehydrating Unit

A. W. WARNER, Philadelphia Suburban Gas & Electric Co., Chester, Pa.

THE engineers of the Philadelphia Suburban Gas & Electric Company have recently put into operation a continuous tar dehydrating unit for removing water from high free carbon high water content coal gas tar which promises a comparatively easy solution of this problem. The accompanying diagram clearly shows the method of operation. The characteristics of this particular by-product of high heats is too familiar to dwell upon.

This apparatus consists of a mixing

tank, a Kinney steam jacketed engine driven pump (75 gal. per min. at 300 R. P. M. capacity) a steam coil heat exchanger (80 sq. ft.) and a half a dozen $\frac{3}{4}$ " open end pipes feeding into a dehydrating tank. Through this part of the apparatus the tar is continuously circulated. An overhead wet tar tank should be provided with a constant flow device so as to feed a constant stream of wet tar into the mixing tank. As this tar flows into the system, it raises the level of the circulating tar in the dehydrating tank



and causes it to overflow into the dry storage tank ready for shipment. From the top of the dehydrating tank a passage for the vapors is provided to the condenser. From this condenser the liquor flows to any suitable storage container. The control of this apparatus is very flexible—speed of pump, pressure of tar in heater, and steam pressure in coils.

If tar containing 5 per cent water is required, the system when shut down contained 5 per cent tar. Upon starting again to dehydrate, this mixture is circulated through the heat exchanger until it has nearly reached the frothing point (about 110 deg.). Then the feed is opened and the continuous dehydration starts. The mixture entering the pump

is continuously cooled by the admixture of cold wet tar, the tar passing through the heater usually reaches 230 deg. F. and drops to about 212 deg. F. due to the heat carried away from the dehydrating tank by the water vapors. Tar can be carried to any degree of dryness. Mr. George Simmons, the Gas Company's chemist, who has worked out the critical temperatures and controls of this apparatus, reports that this apparatus can extract 40 gal. of liquor from 200 gal. of wet tar in one hour, without heating the tar beyond 230 deg. F. and with no frothing. The pump circulates about 50 gal. of hot tar per minute. The steam jacket around the pump is for starting purposes only.



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E. M. Colquhoun, Vice-Pres. & Gen. Mgr.,
Middletown, Penn.

Substitutes for Pine Planer Shavings as a Carrying Base for Iron Oxide in Purifying Material

S. J. MODZIKOWSKI, Laboratory, The Peoples Gas Light and Coke Company, Chicago, Illinois

THIS article describes the results of an investigation made to determine a suitable substitute for the usual pine planer shavings used as a carrying base to give surface and fluffiness to purifying material.

General Explanation

To remove sulfuretted hydrogen from the gas, materials containing more or less hydrated iron oxide are used. There are various methods employed for making purifying material, but the principal object in each case is to obtain the iron oxide in as fine a state as possible and to mix it intimately with and have it adhere to a suitable carrying material. Pine planer shavings have thus far been almost exclusively used as the carrying base. However, owing to the cost of shavings, an investigation was started to determine, if possible, what materials could be used as suitable substitutes.

These tests were conducted with the idea of determining the amount of oxide that the various carrying materials used would retain per bushel, since the amount of iron oxide which can be retained by a carrying base is a direct measure of the purifying capacity of the mixed purifying material, all other factors being equal.

Materials Used

The carrying materials used in these tests were as follows:

- 1—Chopped Excelsior.
- 2—Ground Corn Cobs.
- 3—Wood Chips.
- 4—Pine Planer Shavings.

Photographs of each material used are included in this article.

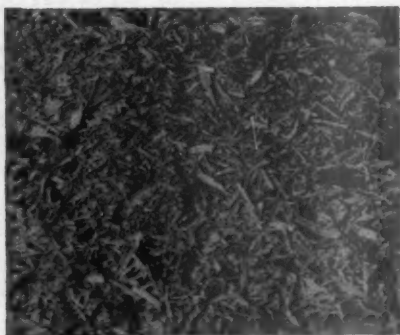
Method of Testing

The general procedure throughout this investigation was as follows: Exactly 1/10 bushel of the carrying material was mixed in each case with various amounts of iron oxide, these amounts ranging from 2.5 pounds to 5 pounds per 1/10 bushel. The oxide, as received, was broken up, pulverized, and very thoroughly mixed with the carrying base so as to give a mixed purifying material similar to that used in practice. In mixing, a certain amount of water was added as would be done in practice in order to make the oxide adhere to the carrying base.

The mixed mass was then spread out and allowed to dry. Upon drying, the purifying material was "turned" several times, as in actual practice. The entire mass was then passed through a 1-8 inch screen in order to separate the loose oxide—that had fallen off during the turning—from the mixed purifying material. In the case of wood chips, a 20-mesh sieve was used for screening the loose oxide.



WOOD CHIPS



EXCELSIOR



CORN COBS



PINE PLANER SHAVINGS.

A. G. A. MONTHLY

The same oxide was used in all the tests.

obtained with the various carrying materials. For convenience, 1/10th bushel of each material was used. The results given below are on the basis of one bushel.

Results

The following tables give the results

I. OXIDE + PINE SHAVINGS

Weight of Oxide in pounds.	Weight of 1 Bu. Shavings in lbs.	Total Weight of purifying material before Turning in Lbs.	Total Weight of purifying material after Turning in Lbs.	Oxide Lost in Lbs.	Oxide Retained per Bu. of material in Lbs.
25.00	7.20	32.20	24.40	7.80	17.20
30.00	7.20	37.20	24.50	12.70	17.30
35.00	7.20	42.20	30.00	12.20	22.80
40.00	7.20	47.20	34.30	12.90	27.10
45.00	7.20	52.20	35.30	16.90	28.10
50.00	7.20	57.20	36.80	20.40	29.60

II. OXIDE + GROUND CORN COBS

Weight of Oxide in pounds.	Weight of 1 Bu. Shavings in Lbs.	Total Weight of purifying material before Turning in Lbs.	Total Weight of purifying material after Turning in Lbs.	Oxide Lost in Lbs.	Oxide Retained per Bu. of material in Lbs.
25.00	18.80	43.80	30.90	12.90	12.10
30.00	18.80	48.80	34.20	14.60	15.40
35.00	18.80	53.80	35.50	18.30	16.70
40.00	18.80	58.80	40.80	18.00	22.00
45.00	18.80	63.80	39.40	24.40	20.60
50.00	18.80	68.80	37.80	31.00	19.00

III. OXIDE + CHOPPED EXCELSIOR

Weight of Oxide in pounds.	Weight of 1 Bu. Shavings in Lbs.	Total Weight of purifying material before Turning in Lbs.	Total Weight of purifying material after Turning in Lbs.	Oxide Lost in Lbs.	Oxide Retained per Bu. of material in Lbs.
25.00	8.00	33.00	16.00	17.00	8.00
30.00	8.00	38.00	15.40	22.10	7.90
35.00	8.00	43.00	14.30	28.70	6.30
40.00	8.00	48.00	15.70	32.30	7.70
45.00	8.00	53.00	17.30	35.70	9.30
50.00	8.00	58.00	16.90	41.10	8.90

IV. OXIDE + WOOD CHIPS

Weight of Oxide in pounds.	Weight of 1 Bu. Shavings in Lbs.	Total Weight of purifying material before Turning in Lbs.	Total Weight of purifying material after Turning in Lbs.	Oxide Lost in Lbs.	Oxide Retained per Bu. of material in Lbs.
25.00	22.00	47.00	29.80	17.20	7.80
30.00	22.00	52.00	32.30	19.70	10.30
35.00	22.00	57.00	29.70	27.30	7.70
40.00	22.00	62.00	30.30	31.70	8.30
45.00	22.00	67.00	33.40	33.10	11.90
50.00	22.00	72.00	33.50	38.50	11.50

The question having arisen as to the power of the various purifying materials to absorb hydrogen sulphide, two of the best carriers of iron oxide—pine planer shavings and ground corn cobs—were subjected to a fouling test, and the amount of sulphur absorbed was determined. The shavings mixture used for this test was one which had retained approximately 30 pounds of oxide per bushel. The corn cob mixture contained approximately 20 pounds of oxide per bushel. The table below gives a comparison between the two purifying materials as regards their power to remove hydrogen sulphide from the gas.

Discussion of Results

The following tabulation gives the weight of one bushel (2150 cu. in.) of the various carrying materials used in this test, together with the approximate amount of oxide retained per bushel of material:

Considering the power of the various materials to retain oxide, pine planer shavings rank the highest. The test shows that shavings retain approximately 30 pounds of oxide per bushel, corn

cobs 20 pounds, wood chips 11 pounds, and excelsior 9 pounds. Therefore shavings and corn cobs are evidently vastly superior to wood chips and chopped excelsior.

From the above figures, it is apparent that a mixture of iron oxide and shavings is of much greater purifying capacity than any of the other three for the reason that a much greater volume of gas may be passed through the same material without removal from the purifier, thereby cheapening the cost of gas purification.

Using shavings as a basis for comparison, approximately one-third less oxide can be mixed with corn cobs than with an equal volume of shavings. Furthermore, wood chips and excelsior will retain about two-thirds less oxide than shavings.

Now since corn cobs will retain one-third less oxide than shavings, a corn cob mixture will decrease the capacity of a purifying box one-third or 33 per cent less gas can be purified with a given volume of corn cob material, using the same kind of iron oxide. This is on the assumption that mixtures of oxide with

Material	Oxide Retained in Lbs. per bushel of material (approx.)	Sulphur absorbed in lbs. per Lb. of oxide (dry basis)	Sulphur absorbed in Lbs. per bushel of purifying material (dry basis).
Pine planer Shavings	30	0.1855	5.566
Ground Corn Cobs	20	0.1244	2.488

Material	Weight per Bushel of Material in pounds.	Oxide Retained in pounds per Bushel of Material.
Pine Planer Shavings	7.20	30
Ground Corn Cobs	18.80	20
Wood Chips	22.00	11
Chopped Excelsior	8.00	9

(Continued on page 446)

QUESTION BOX

THE questions and answers on accounting subjects in the Question Box have been contributed by the Accounting Section Committee on State Representatives, Mr. W. A. Sauer, Chairman, who will be glad to receive inquiries from any of our members on their accounting problems.

Questions and answers under "General Problems" are the result of inquiries received at Association headquarters and answered through the committees of the various Sections or from the Association files.

Answers from our members are solicited on questions which come within their experience and such answers should refer to code number of Question, A-1, G-1, etc.

—Editor.

ACCOUNTING PROBLEMS

- A-21** Our City Commissioners contemplate an ordinance prohibiting the opening of newly paved streets for a period of at least five years. Can you advise whether similar ordinances are in effect in other cities; and whether such ordinances apply to all paved streets?

ANSWERS

Mr. Harry T. Hughes, State Representative, Denver, Col.

We know of no such ordinance in Denver. We can cut a paved street at any time after it is laid. We have always been opposed to the practice of anticipating the needs of gas mains and services in advance of paving since there is usually a large investment involved that perhaps never pays a return. We have proof of this in decayed service stubs that have never been used. We prefer, in most cases, to take our chances of tearing up the pavement when necessity arises.

Mr. W. R. Putnam, State Representative, Boise, Idaho.

Our Legal Department advise us that they know of no provision in any of the cities in Idaho similar to the ordinance provision referred to in your letter which would prohibit the opening of newly laid pavement for at least five years.

Mr. W. H. Barton, State Representative, Portland, Ore.

An ordinance is in effect in the city of Portland which prohibits the cutting of hard surface pavement within the city limits for a period of two years after the date of laying, except in the case of a declared emergency, such as bad leak, and the City Engineer is given the power to grant such a permit to open the newly laid pavement. But in any other case, special request must be made to the City Council.

We have made use of the laterals extending into the parking area in the past, but the present City Engineer is reluctant about approving any main extension in the parking areas. There are no ordinances in effect in the nearby towns where we supply gas, but permits must be obtained to make extensions on any streets, whether paved, macadam, graveled or otherwise.

The small towns are much more particular about cutting the pavement than they are in the city of Portland, although no ordinances exist in the towns, as mentioned before.

In this connection it may be interesting to you to know that before any pavement is laid in Portland, a petition signed by 61% of the property owners must be obtained before any improvement is authorized by the council. However, this does not mean that 61% of the lots covered by the improvement are occupied by dwellings, which fact makes it very difficult for a utility to lay mains in streets authorized for paving when such a street has only from 25% to 40% of the lots facing on the street occupied by dwellings, and while this company formerly laid mains ahead of all paving projects, we now lay our mains only where the business is justifiable.

DeWitt Clinton, State Representative, Worcester, Mass.

The following cities have reported on ordinances—

Fall River has no city ordinance relating to the opening of newly paved streets.

Boston has an ordinance for the space of two years. No department or person is allowed to open a newly paved street except in case of obvious necessity.

Lowell does not allow the gas company to open a newly paved street for five years without special permit from the city. In case of a leak the gas company is allowed to open

A. G. A. MONTHLY

the street, but the pavement must be relaid under the supervision of the Superintendent of Streets. This is practically the same ordinance as applies to Worcester.

A. W. Borden, State Representative, Hastings, Nebraska.

I have interviewed the gas companies in twenty cities in this district relative to your inquiry and have received fifteen replies.

Of this number but four report ordinances specifically requiring the laying of gas mains in advance of all new paving either by special ordinance or by provision in the Company's franchise. In one of these the ordinance prohibits the cutting of holes in paving, regardless of its character, for a period of eight years after its construction. Another of these cities requires also the laying of stub services to the lot line for each fifty foot lot.

The report of all the remainder are similar and to the effect that this problem is handled in about the only manner it can be. There is every evidence that all of these companies, regardless of ordinances governing the question, voluntarily endeavor to seasonably and reasonably anticipate the requirements of all streets in advance of paving and to co-operate with the city officials throughout. As one man states, "This is neither more or less than good citizenship."

Some of the companies are laying pipe at the intersections with provision for tying in through the parking when the demand for gas in that particular block justifies same and push their services beneath the pavement with a pushing machine. If carried out it is apparent that such a plan completely obviates the necessity for disturbing pavement. There will, of course, be the inevitable occasional instance of having to repair a broken main beneath new paving, but generally speaking, one is convinced that, so far as gas companies are concerned, city legislation on this subject is of small value as a safeguard to the cities interests.

Mr. E. W. Hodges, State Representative, San Francisco, Cal.

While this question has arisen frequently throughout our territory, so far no such ordinances have been passed.

In all cases where permanent pavement with concrete foundation is being laid, the Company finds it advantageous to do all reasonable amount of work necessary to obviate the necessity of tearing up the pavement within, say, five years.

Our attorneys advise that the franchises received by the Company give us the right to use the street in all reasonable ways in the conduct of our business.

Mr. Geo. R. Horning, State Representative, Salt Lake City, Utah.

In this city there is an ordinance similar to the one mentioned, that is, when new pavement is put down it may not be disturbed for a period of five years. The reason for this ordinance in this particular city is that the paving contractor guarantees the paving for a term of five years and if the city grants a permit to cut the paving within that time the contractor has claim that his guarantee is void and the city loses opportunity of recovering on the bond of the contractor for poor work. This ordinance is strictly enforced where such work as main extensions are required.

However, in this city the park-way is nearly as wide as streets in most cities and we have no difficulty in making main extensions through the parking and where necessary, reaching the opposite side of the street from that in which the main is laid by pushing the service under the pavement.

Where a leaking gas or water main develops under pavement it is, of course, impossible for the city to prohibit repairs being made. While they usually grumble at such a permit being issued, the permits are always eventually secured.

I understand that in a number of cities this same ordinance has been in effect but disregarded for a good many years. However, in this particular city the validity of the requirement has never been tested, so that the ordinance remains in effect.

A-22 The Indiana Commission has on several occasions made a verbal ruling that all expense in connection with the raising or lowering of gas mains on account of change of street grade due to paving, is a capital charge. The Commission explained this ruling by stating that the installation of the gas main had never been actually completed and would not be completed until the gas main had been installed in the final location fixed by the city. This final location might be taken as when the city fixed the grade of the street for paving purposes.

The Illinois Commission has ruled that all such expense of changing the position of the gas mains on account of street paving, is an operating expense and should not be charged to Capital Account.

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ANSWERS

Association Headquarters.

For your information we would quote the text of the Uniform Classification of Accounts relating to maintenance of mains:

"This account shall include the cost of maintaining mains. This covers the labor of foreman, inspectors, caulkers, tappers, pavers, drillers, skilled laborers, general laborers, and similar works on street department payrolls while engaged in laying temporary mains and making connections to services, repairing, altering, overhauling, changing position of, street mains, and pumping drips; protecting exposed or undermined mains, searching for and repairing leaks in mains and paving over any of the above work; also cartage and other incidental expense in connection with the above work."

We would say from the above text that the intent is very clear that the cost of moving mains should be charged to operating expense.

In the Uniform System of Accounts for Massachusetts, the following text appears on street maintenance,

"This account shall include the cost of repairing, overhauling and changing position of transmission and distribution mains, including such items as seeking and repairing leaks, repairing pipes or removing and replacing worn sections and fittings, caulking, digging and repaving in connection with such work; repairing transmission pumps and regulators on transmission lines, manholes, valves and other transmission equipment."

This text is not so clear as to the intent under the circumstances you cite, but it is the opinion of the Chairman of our Uniform Classification of Accounts Committee that the commission would probably rule under both of the above provisions that the work should be charged to operating expense.

It is also his recollection that the ruling of the Interstate Commerce Commission with reference to the changing of grade of tracks on account of paving calls for the charging of this work to operating expense.

Mr. C. S. Moore, State Representative, Portsmouth, Va.

Gas companies in Virginia are now operating under the Uniform System of Accounts for Gas Corporations, prepared by Committee on Statistics and Accounts of Public Utilities, and recommended for adoption by State Commissions at the annual meeting of National Association of Railway and Utilities Commissioners in Washington, November 12, 1920.

Reference to Fixed Capital Account No. 321 "Mains" and Operating Expense Account No. 722.1 "Maintenance of Mains" as given in this system will indicate the proper accounting procedure in the case cited.

Mr. H. V. Armstrong, Sioux Falls Gas Company, Sioux Falls, South Dakota.

The State of South Dakota has no Public Utilities Commission.

It is our practice to charge any work on gas mains which are in the ground to "Maintenance Mains," which is an operating account.

Mr. W. R. Putnam, Idaho Power Company, Boise, Idaho.

The question of how to handle the expense of changing the position of the gas mains on account of street paving has never been ruled upon by the Public Utilities Commission of the State of Idaho.

Mr. Geo. R. Horning, Utah Gas & Coke Company, Salt Lake City, Utah.

So far as I am able to find, the Utah Commission has made no ruling in this connection and the classification of accounts, which they have adopted and sent out for the guidance of gas companies, does not show this item of expense. We have heretofore and at present are charging such expense to capital account and up to the present time this charge has never been questioned.

Mr. W. H. Barton, Portland Gas & Coke Co., Portland, Oregon.

With regard to commission rulings in connection with lowering of gas mains, the Oregon Commission has made no ruling on this particular point. However, this company's policy has been to charge the plant account with the cost of lowering mains and credit the plant account with the original labor cost of installing.

Mr. Edward Porter, General Auditor, The United Gas Improvement Co., Philadelphia, Pa.

The Pennsylvania Public Service Commission has not promulgated a Uniform System of Accounts for artificial gas companies, and I am therefore not in a position to advise as to any ruling by the Public Service Commission of Pennsylvania covering the point brought up.

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It is difficult however to reconcile the ruling of the Indiana Commission with their Classification of Accounts, as the classification calls for the capital account to be charged with the expense of installing mains, "at the time the main is installed" and an operating account to be charged with the expense of "changing position of gas main."

It would seem inconsistent to increase a capital account with an expense incurred possibly several years after the main has been originally laid, when the mere change of the grade would add nothing to the value of the investment.

Mr. DeWitt Clinton, State Representative, (New England) Worcester, Mass.

Summary of replies from the writer's territory is as follows:

Maine

No official ruling by Commission. But chief accountant declares it to be "A proper operating expense and in no wise a capital charge."

New Hampshire

No formal ruling by the Commission. The chief clerk states "such work results from a type of supercession, so-called, and as such, becomes a proper charge against the depreciation reserve and should be allowed for in the reserves made to that account."

Vermont

No formal ruling by Commission. No information from chief clerk.

Massachusetts

The ruling of the Massachusetts Commission is directly in accord with that of the Illinois Commission as up to the present time this Commission has always taken the position that expenses incurred in moving mains was an Operating Expense.

Rhode Island

No ruling or decision by the Commission. No further information from Secretary of Commission.

Connecticut

No official ruling by the Commission on gas mains. "In the case of water companies, the question has been very carefully decided, and the changing of position of either transmission mains or distribution is regarded as an operating maintenance expense and is so fixed in the Uniform System of Accounts for Water Companies prescribed by this Commission." The Auditor and Statistician states that after the pipe is first laid as a capital charge "any cost of changing such pipe from that location is a maintenance cost to the Company. There may be a question as to who will pay that cost."

Mr. H. C. Schaper, Milwaukee Gas Light Company, Milwaukee, Wisconsin.

Our Company has charged all expenses in connection with raising or lowering of gas mains on account of street grade to depreciation reserve, and this has been approved by the auditors of the Wisconsin Railroad Commission.

GENERAL PROBLEMS

G-55 We are running a test on some coal and find that with the exception of what seems to us to be an abnormal amount of lamp black, the coal is satisfactory.

This lamp black causes stand pipe stoppage, and also causes a great deal of complaint from our consumers due to the blackening of their cooking utensils. Won't you advise what, in your opinion, causes this, and also give a suggestion as to a remedy for same.

ANSWER

Mr. Edward H. Bauer, Providence Gas Company, Providence, R. I.

On coke ovens, stoppages in standpipes are caused by two things: (1) very high volatile coal and (2) very finely pulverized coal or dusty coal charged into the ovens. In the first case, the higher boiling hydrocarbon compounds or pitches deposit on the sides of the standpipe and, after a while, are baked solid, leaving practically free carbon on the walls of the standpipe. This is removed by either chipping it off mechanically or burning it out. The second deposit is caused really by a combination of the two, the dust in the coal charged in the ovens sticking onto the walls of the standpipe which have been covered by the high boiling pitches. This deposit, however, is a little bit softer and can be more readily removed by chipping.

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Lampblack formed in the ovens is caused by the richer gases coming in contact with the highly heated surfaces of the oven or retort walls, where these higher forms of hydrocarbons are broken up into lampblack and other lower forms of hydrocarbon compounds. This lampblack will then stick to the sides of the standpipe as explained above in the case of dust. Reducing the heats in the tops of the ovens will reduce the amount of lampblack made.

In the second part of the second paragraph, I note that the company members' consumers are complaining of black deposits blackening the bottom of their cooking utensils. I am quite sure this is not caused by lampblack in the gas, for it is almost impossible to carry lampblack dust through the ammonia train, purifiers, station meters, etc., and have this deposited on the customers' appliances. This condition is no doubt due to a long flame setting of the burners, the flame touching the cold cooking utensil and thereby cooling the gas, so that lampblack is formed and deposited on the utensil. Proper adjustment of the burners will eliminate all of this trouble.

Coming back to the lampblack carbon deposits in standpipes, ovens or retorts, I might state that we eliminate a great deal of this trouble at our plant by adding moisture to the pulverized coal. We are aware of the fact that it takes heat to evaporate this added moisture, but the steam formed by this moisture attacks the carbon deposits on the oven walls and in the standpipes and reduces the amount to a minimum, thereby eliminating the expense of removing this carbon by hand. Our coals run from 2% to 3½% moisture and we add water enough to bring this up to from 5% to 7% water, the amount depending upon the amount of carbon we wish to remove from the side walls.

G-56 As we are contemplating an increase in purifier capacity at our plant, we would be glad to have any information as to the best type of purifier to be used. Some recommend the divided flow and some the through flow and your advice on this point will be appreciated.

ANSWERS

Dr. J. F. Wing, Boston Consolidated Gas Company, Boston, Mass.

Concerning the inquiry of increasing the purifying capacity of some member's plants, they question whether the divided flow or the through flow would be desirable. I would be in favor of the through flow of the gas through the box, in the case of increasing the capacity, with two conditions,—if the box could be raised and double the volume of oxide put in, without creating too much back pressure; and secondly—if the area available would permit the installation of an additional box with a single layer.

In the case of raising box and doubling the capacity, and dividing the flow of gas, when one has two equal layers, the work of the oxide is not nearly twice that of one of the layers, in a one layer box; owing to the difficulty of dividing the flow in equal currents, and to the additional difficulty of having a lot of posts, and other iron work which permit freer passages in the two story installation.

If this is a case of increasing the capacity in the present purifying plant and the present installation would be able to purify the expected volume of gas if it contained one-half as much sulphuretted hydrogen as at present, I would recommend the company to become interested in the Koppers Company's Liquid Purification System, which is operated easily and is comparatively cheap. A rather small unit would be quite effective in their daily manufacture at the rate of two hundred thousand per hour, and evidently the intensity of the operation of this unit could be increased very freely.

Mr. Wm. A. Dunkley, Bureau of Mines, Mining Experiment Station, Urbana, Illinois.

To uphold the merits of either the straight flow or divided flow method of purifier operation would be to go counter to the opinions of some very able gas engineers, since opinion on the subject is divided; some favoring one method and some the other. Personally, I am rather inclined to favor the divided flow method, where a small percentage of air is added to the gas for revivification in place, where purification is watched, where provision is made for reversal of flow at regular intervals, and where there is provision for regulating the distribution of gas between the two layers in a particular purifier. It seems to me that there is no advantage and there may be distinct disadvantages to the method, if any one of these requisites is lacking. The divided flow method of operation gives a lower linear velocity of gas travel through the oxide but on the other hand a particular gas particle travels through only half as much oxide, on its way through the purifiers. Some oxides act very much more rapidly than others as shown by recent research of the Purification Committee and it is possible that one method would be much more favorable with one type of oxide than with another. With divided flow boxes there is, of course, a great tendency for the gas to pass more readily through one layer of a box, than through the other with the result that unless provision is made for throttling the gas to the layer of least resistance, it will do practically all the work and soon be spent.

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Other arguments might be cited on both sides of the question. The reader is referred to Bulletin 37 of the Steere Engineering Co. of Detroit for information on divided flow purifiers. The writer is also enclosing a copy of his Bulletin 25, published by the Illinois State Geological Survey, which discusses the conditions in Illinois gas plants. This may be forwarded to the inquirer.

G-57 At the price per gallon which we are receiving for our coal gas tar, we believe it would be more profitable for us to use our tar for the heating of retorts. We would be glad to ascertain the latest experience of any of your member companies as to the use of tar for this latter purpose.

G-58 We have been asked by a theatre syndicate to light two of their theatres with gas, the idea being to light the entire theatre itself from a centrally located point. As we are not familiar with this system of control, we would ask your advice as to whether or not this is possible.

(Continued from page 414)

standable way. It is inconceivable that such great progress should be made in the comparatively short time the work has been under way. We do not claim that our relations with the newspapers are 100 per cent perfect or that the situation is as good as it might be, but we

can claim reasonable progress and that we have found out many things about the relationship between the utility and the newspapers and the public that have been of mutual benefit and which benefit will grow as the work progresses and enlarges.

(Continued from page 442)

shavings and corn cobs are both equally permeable to the gas and that the contact between the oxide and gas is the same in both cases.

However, results obtained from a fouling test show that this assumption is not tenable. A fouling test made on a shavings mixture which had retained 30 pounds of oxide per bushel, showed that 5.566 pounds of sulfur were absorbed

per bushel of dry purifying material. A similar test made on a corn cob mixture, which contained 20 pounds of oxide per bushel, showed 2.486 pounds of sulfur absorbed per bushel of dry material. Assuming the two mixtures to contain equal amounts of oxide per bushel, a corn cob mixture will absorb approximately one-third less hydrogen sulfide than an equal volume of shavings mixture.

Wanted—Assistant Gas Engineer

On July 15th written examination will be given for the position of Assistant Gas Engineer—\$3000—Immediate Appointment—by the Civil Service Commission of New York State. Circular giving full details can be secured from the Civil Service Commission, Albany, N. Y.

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Employment Bureau

Today there is a pronounced and growing demand for high grade sales executives who can not only profitably merchandise the gas company's product, but who are also capable of handling the public relations of the company.

With the increasing tendency to actively push the merchandising of gas appliances so evident throughout the industry, there is springing up a greater demand for broad gauged and experienced men to fill important positions in gas companies.

The Association will act as a clearing house, and, without charge to its members, assist companies in getting in touch with individuals who are seeking new connections.

All inquiries from companies or applications from individuals should be directed to Association headquarters and will be treated as strictly confidential.

SERVICES REQUIRED

WANTED—Fitter who can do good work on installation of water heaters, ranges and who thoroughly understands Gas Company appliance work. Address A. G. A.

Key No. 01.

HIGH GRADE Industrial Sales Engineer wanted. Must be man having had factory experience and knowledge of house heating. Gas company in middle west has need of such a man and requests applicants to give full particulars of experience. Appointment for interview will be arranged. Address American Gas Association.

Key No. 04.

WANTED—A young man with some experience in the manufacture and distribution of gas, as an Industrial Fuel Engineer in Sales Department of an eastern gas company. One who is qualified to work up various industrial fuel problems and make good in this end of the business is assured of proper advancement. Address A. G. A.

Key No. 04.

MANAGER WANTED—for small, water gas plant within 300 miles of New York. Applicant must be familiar with manufacturing distribution and commercial functions and possesses a personality that would be pleasing to the public. State age, previous experience, salary wanted, and all other pertinent facts. Address A. G. A.

Key No. 05.

SERVICES OFFERED

WANTED—Position by a man of large general experience in gas business who has made a special study of sales promotion problems, and who would prove valuable as an assistant to a busy executive in any department. Address A. G. A.

Key No. 134.

GAS APPLIANCE SALESMAN—Especially trained in water and house heating; 15 years' experience; desires selling position, either road or local, with aggressive appliance manufacturer or gas company. Will furnish best selling reference. Drawing account against commission. Address A. G. A.

Key No. 125.

WANTED—Position of responsibility as Manager or Industrial Fuel Engineer—12 years varied experience in the gas business. References and service record furnished. Address A. G. A.

Key No. 142.

ENGINEER—Producing results in operating desires to make change, either as Engineer or Assistant Engineer of Works with output over 20,000,000 daily output. Or in Managing capacity. Address A. G. A.

Key No. 135.

WANTED—Position as executive in a local office of a gas or a combination gas and electric company. Have had a practical experience in all branches of commercial utility work. Have been successful in dealing with the public and promoting good will of utility companies. Educated in commercial and accounting methods as compiled by N. C. G. A. and N. E. L. A. Well acquainted in office routine and very exact on details and execution of same. Address A. G. A.

Key No. 114.

WANTED—Man of wide executive experience in gas accounting, statistics and system and a record of success in gas appliance merchandising, is now after illness of several years, prepared to sacrifice in size of salary if necessary to obtain exactly the sort of position he is looking for. Inquiries solicited. Address A. G. A.

Key No. 141.

INDUSTRIAL FUEL ENGINEER—Knowing heat treatment as applied to general industrial problems, house heating, hot water storage, and who knows the construction, operation and proper installation of every appliance he handles. Who has sold himself "Gas" as the heat treating medium, who has excellent "business getting" and executive abilities, would like to change to corporation where his abilities can be better utilized. Address A. G. A.

Key No. 139.

POSITION WANTED—Technical graduate with some experience in all branches of combination, manufactured, and natural gas companies, but particularly as head of industrial and new business departments, desires responsible position with a future. Address A. G. A.

Key No. 140.

WANTED—Graduate Gas and Electrical Engineer—age 31, married. Technical degrees, B. S., M. S. & E. E. Associate member A. I. E. E., member A. G. A. Nine years practical gas and electric public utility operation in responsible capacity. State Public Service Commission Engineer. Former work as Manager or Assistant Manager of gas or combination gas and electric property. Now in New York. Location anywhere. Best of references. Address A. G. A.

Key No. 143.

WANTED—Change in employment, where experience and sincere efforts may be better utilized and appreciated. Technical and with 12 years diversified experience in gas lines, having held positions of responsibility in manufacturing and distribution, in industrial fuel and in research engineering. Address A. G. A.

Key No. 144.

AMERICAN GAS ASSOCIATION, INC.

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COMMERCIAL—Chairman	A. P. POST	Philadelphia, Pa.
Vice-Chairman	Wm. GOULD	Boston, Mass.
Secretary	LOUIS STOTZ	Ass'n Headqrs.
MANUFACTURERS—Chairman	J. S. DEHART	Newark, N. J.
Vice-Chairman	E. A. LENKE	Kalamazoo, Mich.
Secretary	C. W. BERGHORN, Jr.	Ass'n Headqrs.
TECHNICAL—Chairman	C. N. CHUBB	Davenport, Iowa
Vice-Chairman	F. C. WEBER	New York, N. Y.
Secretary	H. W. HARTMAN	Ass'n Headqrs.

SECRETARY-MANAGER	OSCAR H. FOGG	Ass'n Headqrs.
ASST. SECRETARY-MANAGER	LOUIS STOTZ	Ass'n Headqrs.
ASST. TREASURER	W. CULLEN MORRIS	New York, N. Y.

